

# PAINT and VARNISH Production

THE TECHNICAL MAGAZINE FOR MANUFACTURERS OF PAINT, VARNISH, LACQUER AND OTHER SYNTHETIC FINISHES

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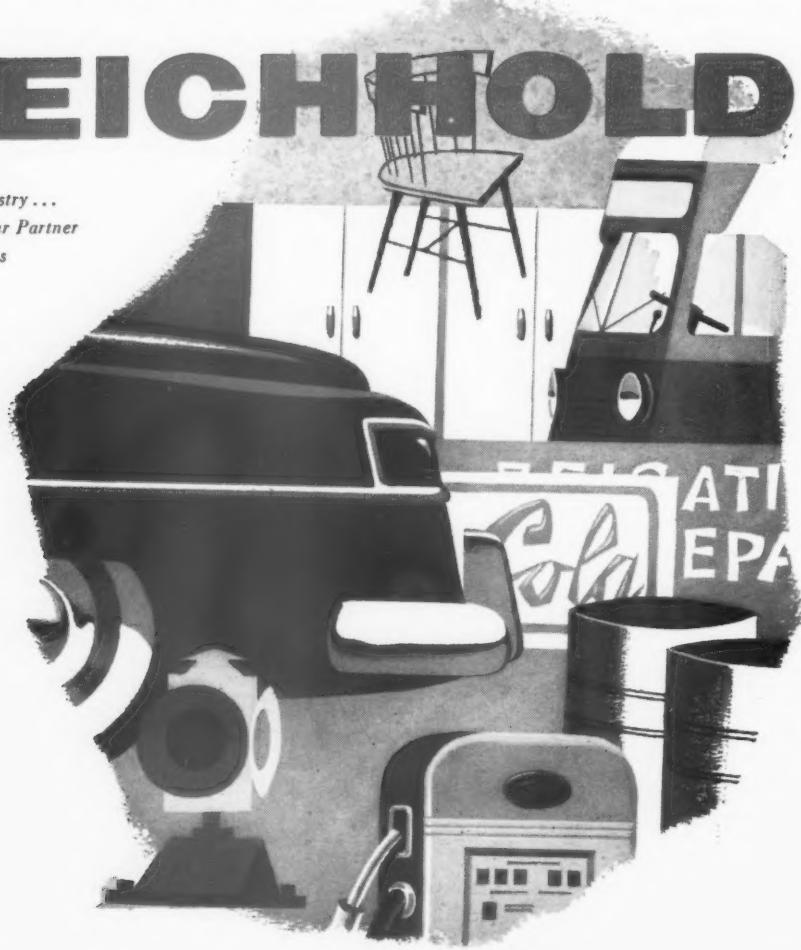
For all the facts about BECKAMINES 3530 and 3535, write for Technical Bulletins SC-3 and SC-4.

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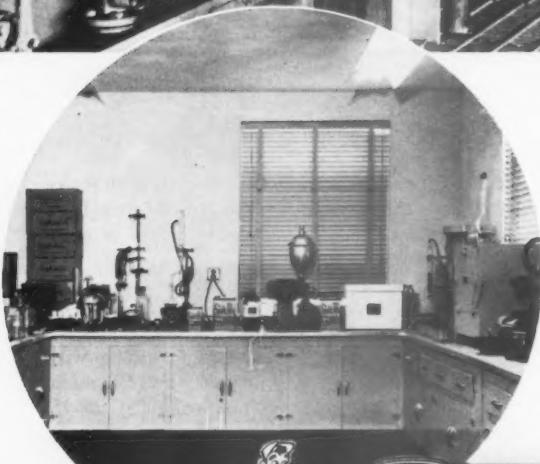
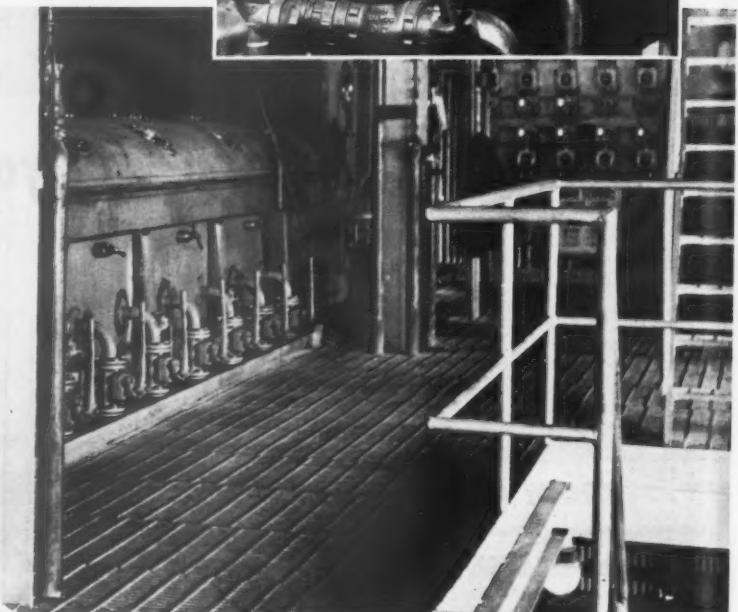
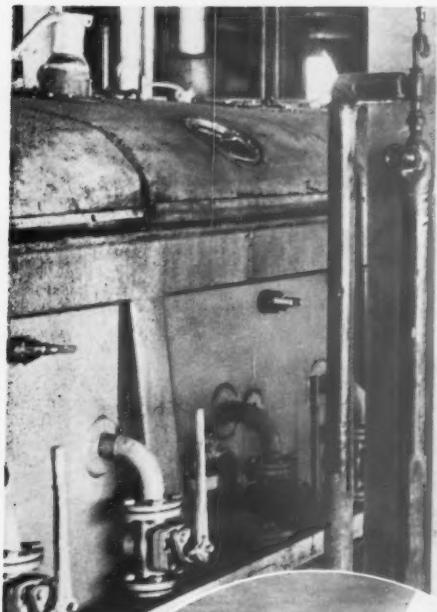
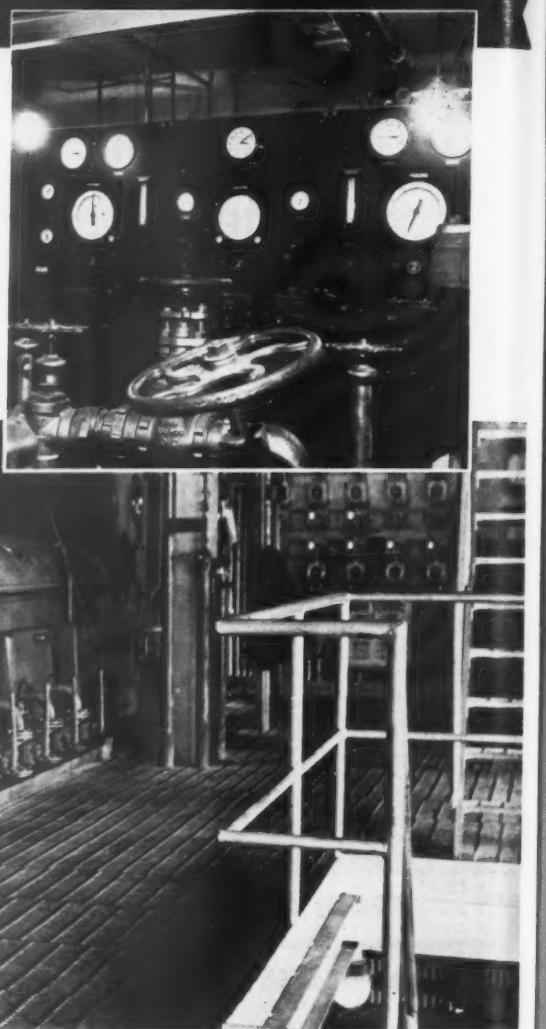
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# PAINT and VARNISH Production

(REG. U.S. PATENT OFFICE)

Formerly PAINT and VARNISH PRODUCTION MANAGER  
(Established in 1910 as The Paint and Varnish Record)

## NEXT ISSUE

One of the drawbacks found in the application of vinyl-based paints is that such coatings are not easily brushed on, nor do they work well in the spray gun unless quantities of thinner are used. Since vinyl-based paints have exhibited remarkable corrosion inhibiting properties, their use have been hampered because of these application difficulties.

In this connection, the next issue of Paint and Varnish Production will feature an article on hot spray application of vinyl paints which has been found to be successful in obtaining adequate film thickness for the proper performance of such coatings. The article covers the hot spray technique, results of various test applications, and advantages derived from this method.

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SEPTEMBER, 1954

NO. 9

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PAINT



### Liberalized Tax Write-Off in Offing

S. D. MADDOCK, president of the C.I.T. Corporation, recently pointed out that about 60 billion dollars' worth of capital equipment in U. S. industry is more than 10 years old and within two decades the figures will climb to 200 billion. These figures indicate a steadily rising demand for machinery and equipment to replace and supplement industry's capital equipment.

Maddock said a study by the Machinery and Allied Products Institute showed current replacement expenditures in industry amount to \$10.4 billion annually. This figure, the study showed, will increase to \$15 billion by 1960 and \$26.7 billion by 1975.

"Expenditures for replacement of old equipment would exceed these estimates impressively," Maddock said, "if industry weeded out all the obsolete and outworn machinery being used."

Much of the lag in modernizing capital equipment, Maddock said, is caused by a failure to understand that income-producing machinery can now be purchased on terms which permit it to pay for itself.

"Any sound enterprise can buy the machinery it needs through an industrial financing firm and arrange terms which will fit the borrower's needs and let the new equipment pay for itself out of increased earning capacity."

In line with Mr. Maddock's observations, it is interesting to note that one of the major provisions of the omnibus tax bill, recently signed by the President, permits businesses to deduct from taxable earnings as much as two-thirds of the cost of new plant and equipment in the first half of the property's useful life. Under the old tax law, such depreciation allowances generally are spread over the property's entire life in equal amounts.

It is expected that such a balanced tax program will vastly step-up plant modernization and expansion, thus increasing the nation's industrial output and employment.

### The "Do-It-Yourself" Boom

HIGH rates of activity in construction awards for commercial building, single-family homes, and schools, were among the outstanding trends in the first half of 1954, according to a midyear review by Dr. George Cline Smith, economist for F. W. Dodge Corporation.

In analyzing residential construction during the first half of 1954, Dr. Smith points out that total construction in this particular category totalled \$3,981,000,000, up 22 percent above the same period of last year. This surprisingly large rise was accounted for primarily by an increase in awards for one-family dwellings constructed for sale or rent, which totalled \$2,595,000,000 and set a new record, 37 percent above the first half of last year.

The above figures in residential construction are an indication that more and more people have houses of their own for the first time. Thus, in the immediate years to follow, the task of improving and preserving these dwellings will, in most cases, fall to the owner himself—making him a potential customer of the "do-it-yourself" market.

It has been estimated that American amateur decorators used some 400 million gallons of paint last year, and this accounted for 75 percent of all the paint sold in the United States.

We cannot overemphasize the growing importance of the "do-it-yourself" trend and with this booming market now doing a total business of some six billion dollars a year, of which paint accounts for a substantial percentage, we can confidently anticipate a continued surge in amateur painting during the years ahead.

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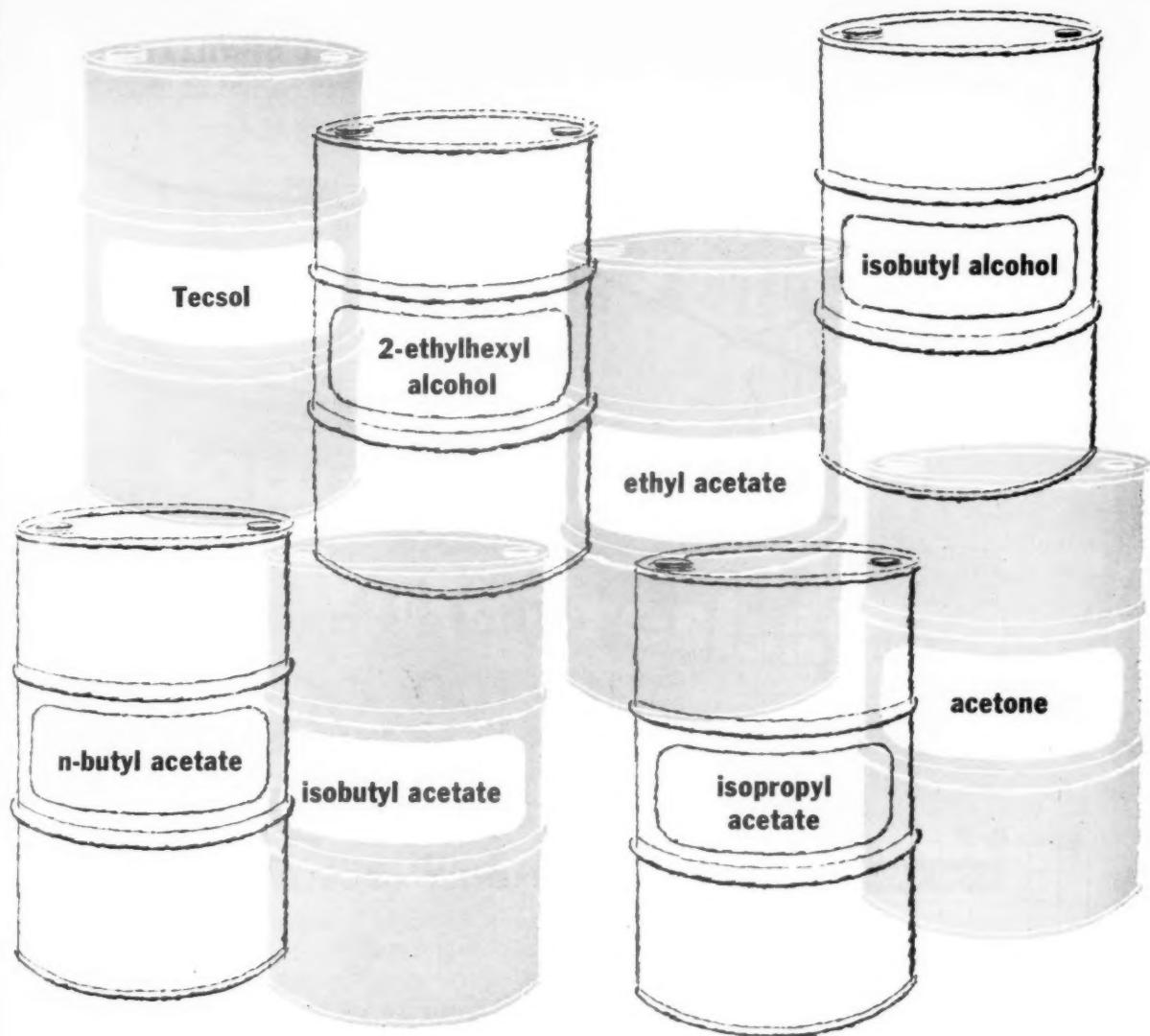
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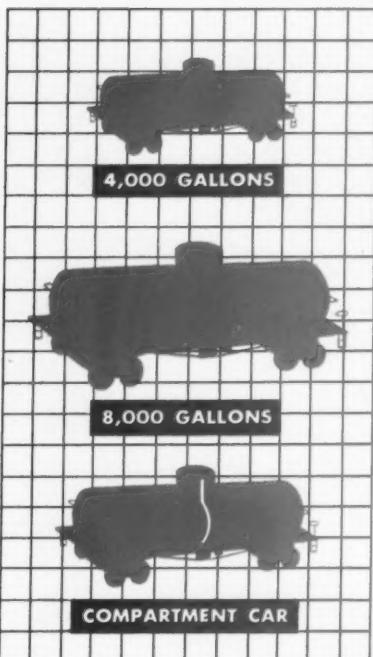
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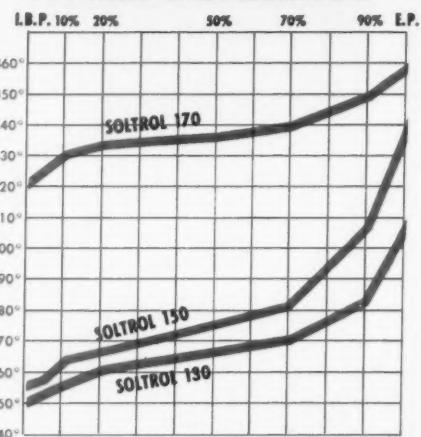
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### DATA

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pH — 4-5

Particle Size — Mostly under one micron

Viscosity — About 2,000 cp

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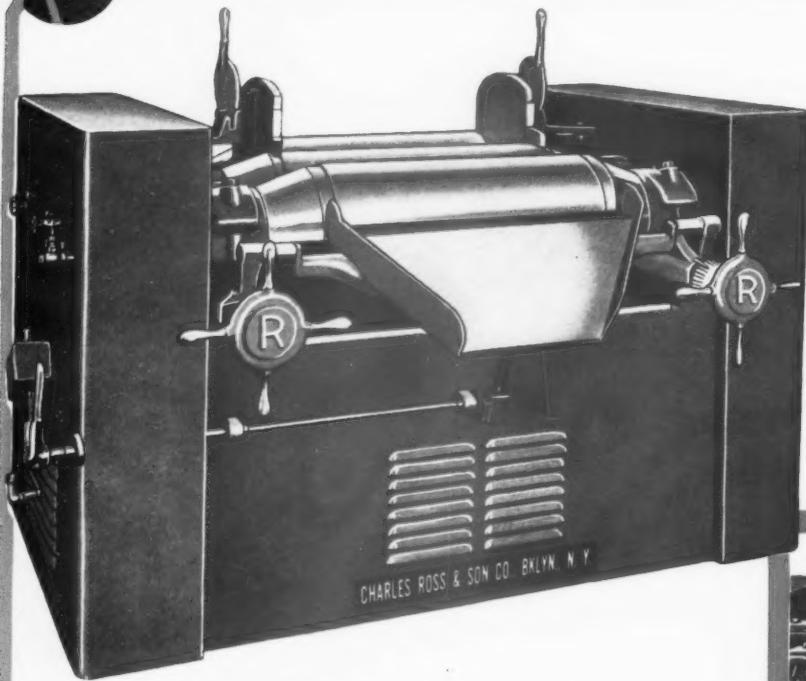
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100	Dispersed Strength	275
405	Hiding Sq. Ft./Lb.	670
27	Gloss %	60
75:25	Grinding Ratio	75:25
3.50	Hegman Fineness	6.50

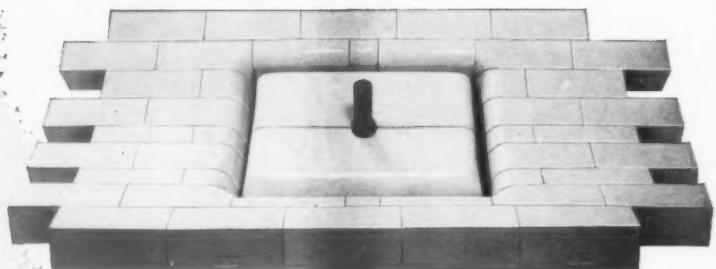
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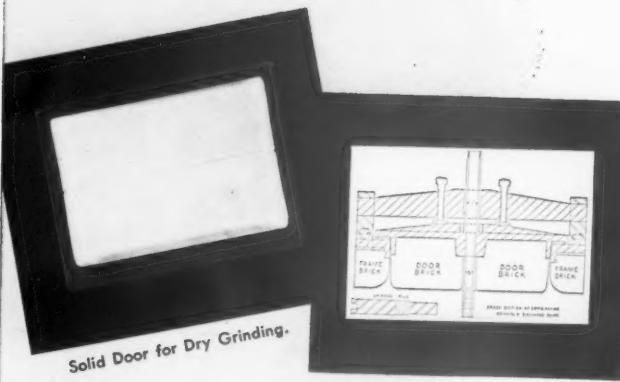
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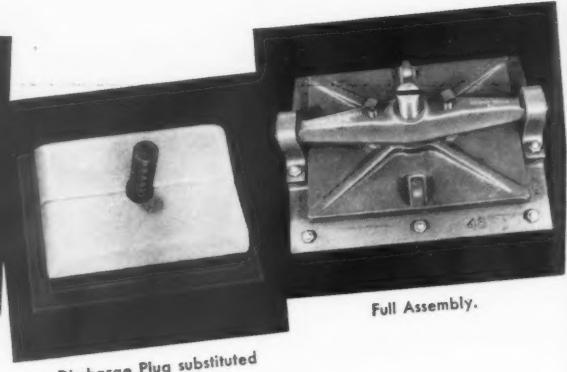


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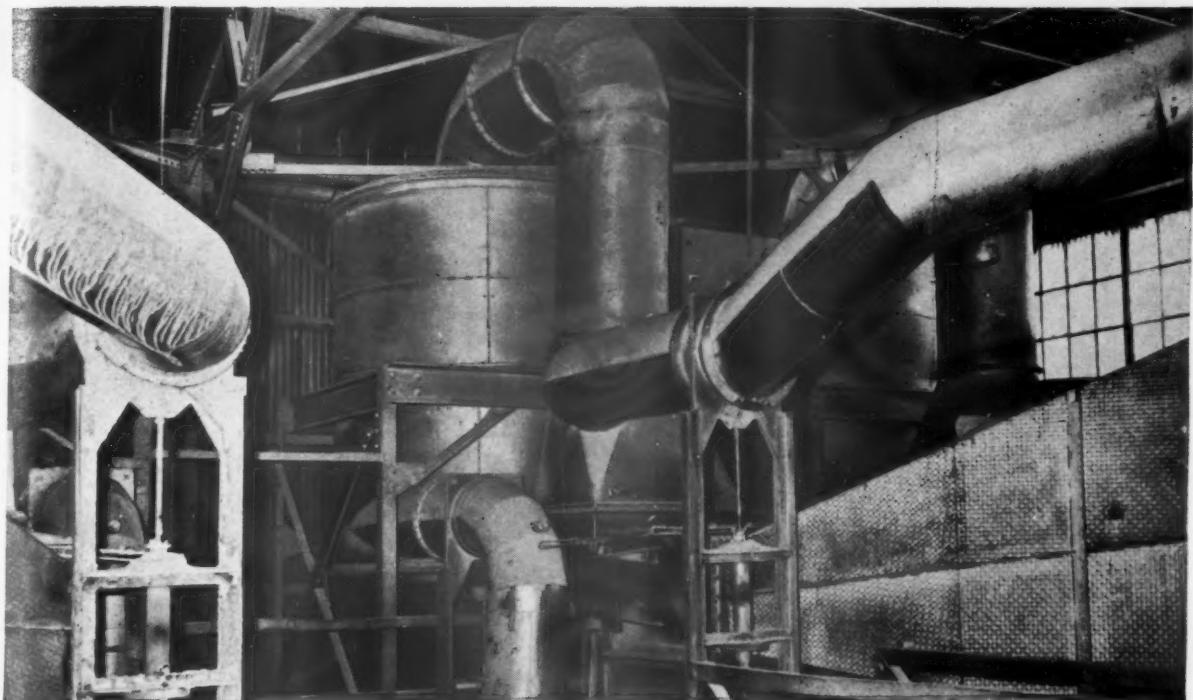
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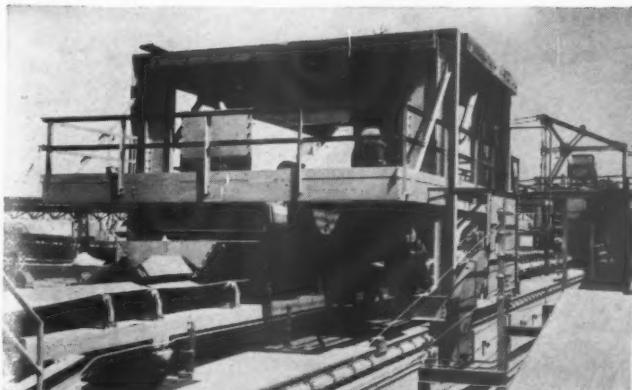


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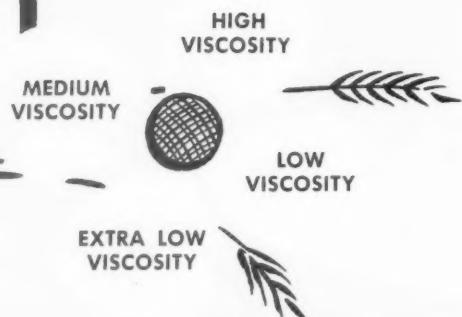
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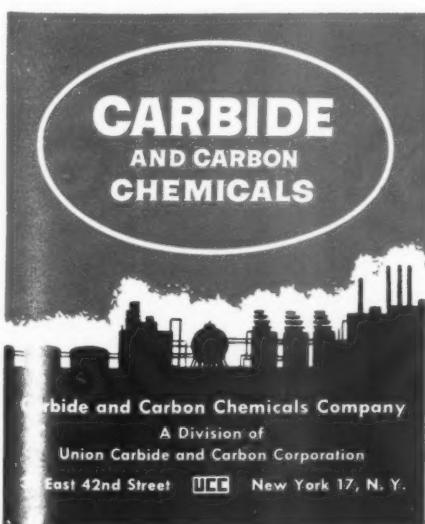
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on ethyl acetate or isopropyl acetate, ask your nearest CARBIDE office for the book "Esters" (F-4766). If you want information on all of CARBIDE's solvents and plasticizers useful in lacquers ask for "Solvents" (F-7465). In Canada: Carbide Chemicals Sales Company, Division of Union Carbide Canada Limited, Toronto.



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# PIGMENTATION OF FLAT PAINTS

By DR. W. H. MADSON\*

PAINT manufacturers have always been interested in information on ways to improve their flats. There has been a tendency to overemphasize the importance of the vehicle and underrate pigmentation. About five years ago our laboratory undertook the study of determining the importance of pigmentation on flat paint quality. This study has continued since that time and the end is still not in sight.

## Color Uniformity

At the time we started this study, many paint manufacturers were anxious to improve the color uniformity of their product when applied over surfaces of varying porosity. A review of the paints on the market showed that many of them were lacking in this quality. It is very gratifying to observe the quality improvement of commercial flat paints from that time. This improvement is readily demonstrated by observing test panels painted with 1949 and 1954 flat paints.

Our laboratory has succeeded in developing a pigmentation for a flat paint with excellent uniformity of appearance over surfaces of widely varying porosity. This paint is pigmented with enamel grade rutile titanium dioxide, selected calcium carbonate pigment and diatomaceous silica. When extended titanium dioxide pigments are substituted for the titanium dioxide/calcium carbonate, good flat paints may be made, but they do not show the degree of overall excellent performance that is shown by the titanium dioxide/calcium paints. Our pigmentation has been studied using many different vehicles, including alkyds, odorless alkyds, limed oils, modified oils, etc. In all cases, excellent results were obtained with our preferred pigmentation.

\*D. Madson is Sales Service Division Head—White Pigments, E. I. du Pont de Nemours & Co., Newport, Del.

This paper was presented to the 8th Divisional Conference of the Protective Coatings Division of The Chemical Institute of Canada—Montreal—Toronto, February 25, 26, 1954.

The tests used in our development work were designed to reflect the performance of the product in practical application. Since color uniformity is a very important property, methods of testing and reporting results had to be developed.

## Test Methods

The panels used in testing for color uniformity were wallboard divided into six areas. Each area was primed with a different paint, varying from a very porous to an excellent undercoater. Figure 1 illustrates the test panel and exhibits the relative porosity of each area by enamel holdout and mercurochrome staining. By observing Figure 1 it will be seen that when an enamel is applied over the various undercoaters, wide differences in enamel gloss are encountered. Similarly, if a mercurochrome stain is applied to the test panel on each of the different areas, wide differences in results in staining are encountered. Thus, these two tests illustrate the wide variance in undercoater porosity.

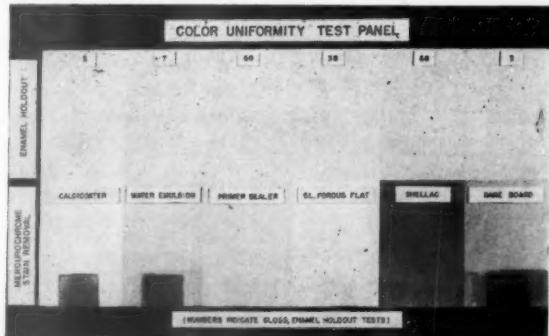


Figure 1. This test panel exhibits the relative porosity of each area by enamel holdout and mercurochrome staining.

To test for color uniformity, each white paint evaluated was tinted with Phthalocyanine Green ground in "Z" viscosity linseed oil. The first coat was applied to the entire test board at a spreading rate of 450 square feet per gallon. Following a forty-eight

hour air dry of the first coat, a second coat was applied to the bottom half of the panel.

The color uniformity data are shown as a difference between the highest and lowest reflectance from any two of the six different areas for both one and two coats. (The reflectance data were obtained using a Multipurpose Reflectometer and a green filter). Thus the paints shown in Figures 2 and 3 presenting the tallest blocks are poorest with respect to color uniformity. The shaded area represents the data charted for two coats. Based on this test, it is obvious that paints showing the smallest area above the base line are best for color uniformity.

It is interesting to note that all the data reported in Figures 2 or 3 were obtained from one paint grind. We have found this type of attack and this method of presenting our results very effective and efficient.

It should be emphasized that when only maximum whiteness and highest hiding power are important the flat paint should be pigmented with extended titanium calcium pigments. Under all other conditions, best results are obtained by pigmenting with rutile titanium dioxide, selected calcium carbonate and diatomaceous silica. Figures 2 and 3 illustrate these facts.

In recent months our laboratory studies have developed information on three additional subjects pertaining to the pigmentation of flat paints; namely, (a) quality of flats made with blends of extended titanium calcium pigments and rutile titanium dioxide pigments, (b) pigment volume concentration ladders at equal titanium dioxide content and (c) effect of extenders on hiding power, brightness and color uniformity of flats.

#### Pigment Blends

Although rutile titanium dioxide gives best color uniformity and titanium calcium pigment must be used for maximum hiding and brightness, some paint manufacturers prefer to use a blend of the two pigments. Figures 4 and 5 show the relationship of the various pigment volume concentrations for rutile titanium dioxide and for extended titanium dioxide pigments. On the basis of these results, 65% P.V.C. was selected as the best value for the general purpose flat.

With this in mind a study was made in three different vehicles to determine the effects of blends of rutile titanium dioxide and extended titanium dioxide. Figures 6, 7 and 8 summarize the results of these studies. The data show that the best compromise pigmentation will vary from vehicle to vehicle, but that 25% extended titanium dioxide appears to be a reasonable compromise for many purposes.

#### PVC Ladders

Our original method of presenting flat paint data is illustrated by Figures 2 and 3. In making the paints one base is ground at a high P.V.C. Portions of this base are then adjusted to the desired P.V.C. level by the addition of vehicle and the resulting paints are reduced to equal consistency with thinners for testing. While this method yields considerable information with a minimum of work, it does not permit precise control of the gallon content of prime pigments and/or extenders. It is often desirable to

#### F-820-21 LOW TiO<sub>2</sub>-ESTER GUM

TiO<sub>2</sub> / CaCO<sub>3</sub> / DIATOMACEOUS SILICA  
21 / 69 / 10 Vol.  
29 / 63 / 8 Wt.

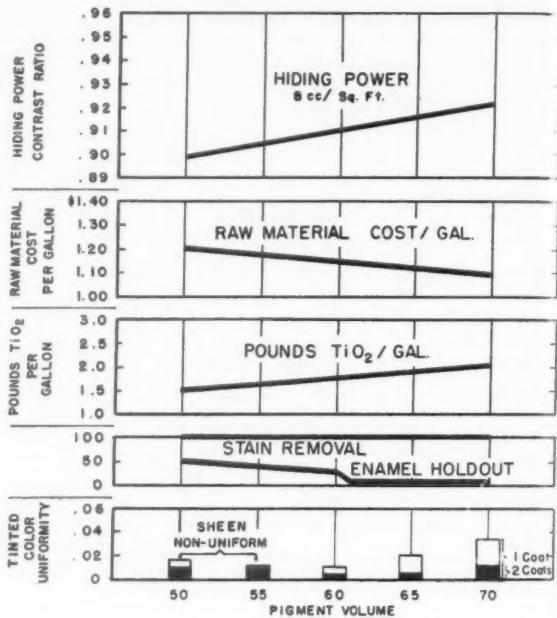


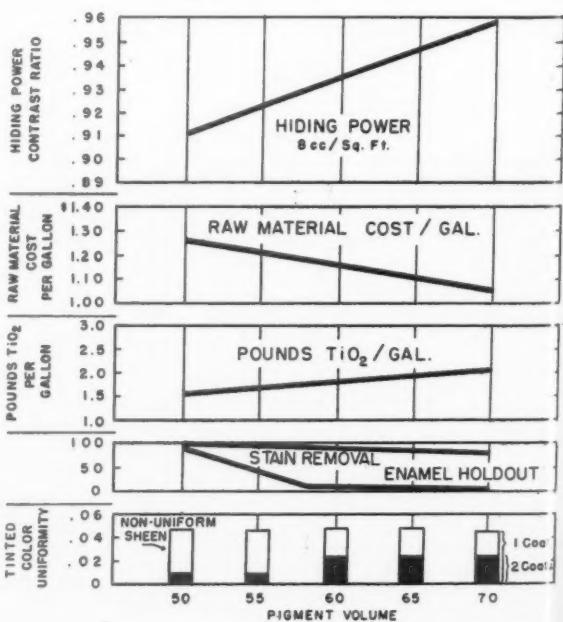
Figure 2. Color uniformity data.

Figure 3. Color uniformity data.

#### F-820-26 LOW TiO<sub>2</sub> - E.G. (as Ti-Ca)

Ti-Ca / DIATOMACEOUS SILICA

90 / 10 Vol.  
93 / 7 Wt.



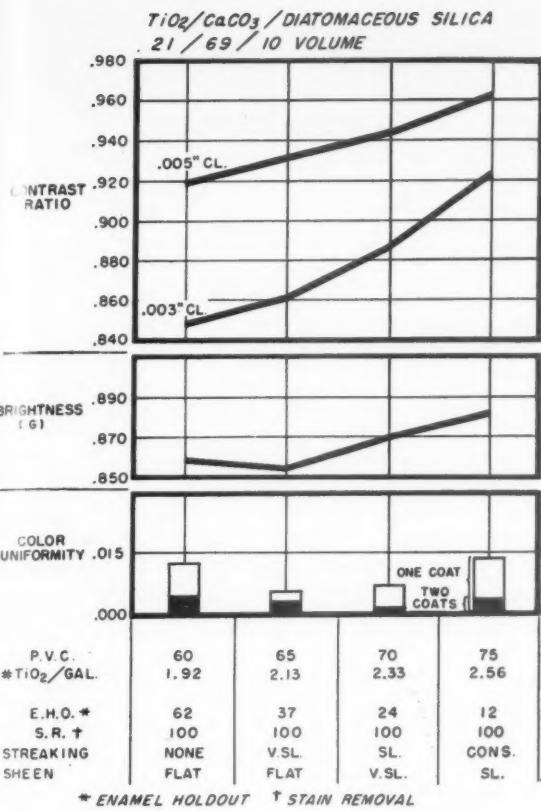


Figure 4 (above) and figure 5 (below) show the relationship of various pigment volume concentrations for rutile TiO<sub>2</sub> and extended TiO<sub>2</sub>.

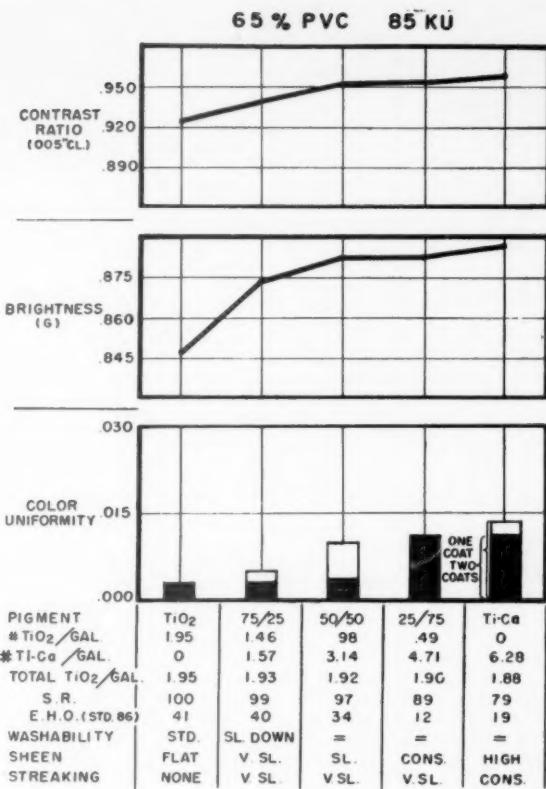
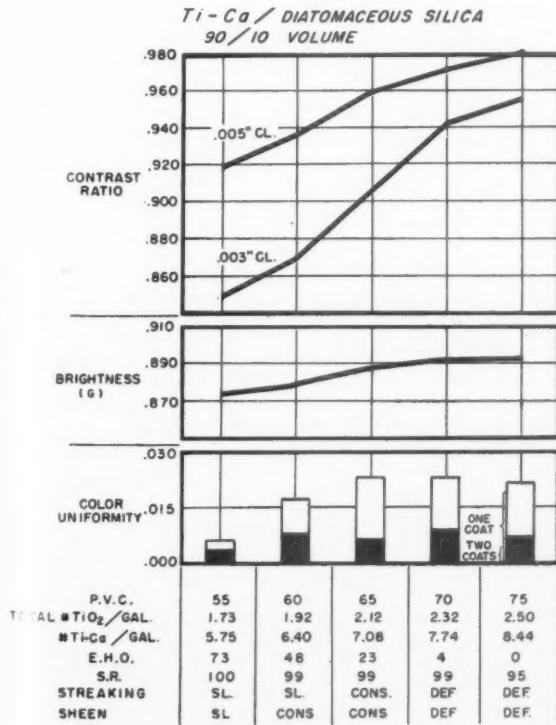
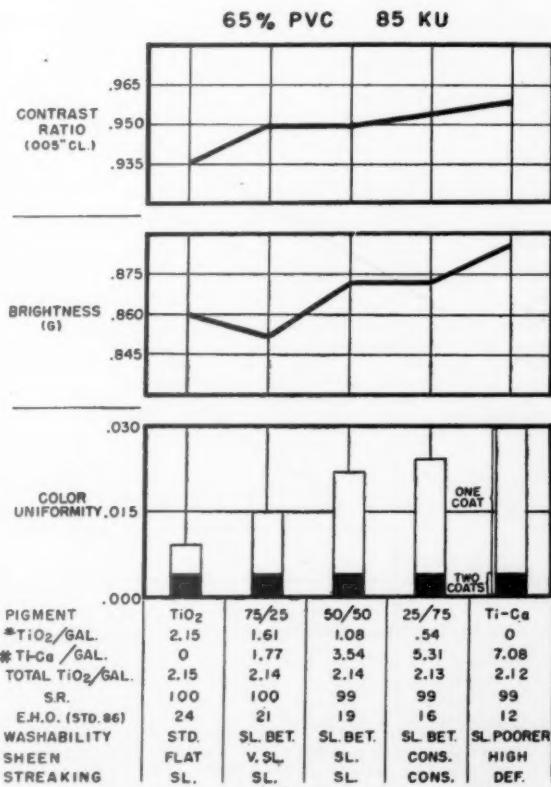


Figure 6 (above), figure 7 (below) and figure 8 (next page) show the effect of blends of rutile TiO<sub>2</sub> and extended TiO<sub>2</sub> pigments in three different vehicles.



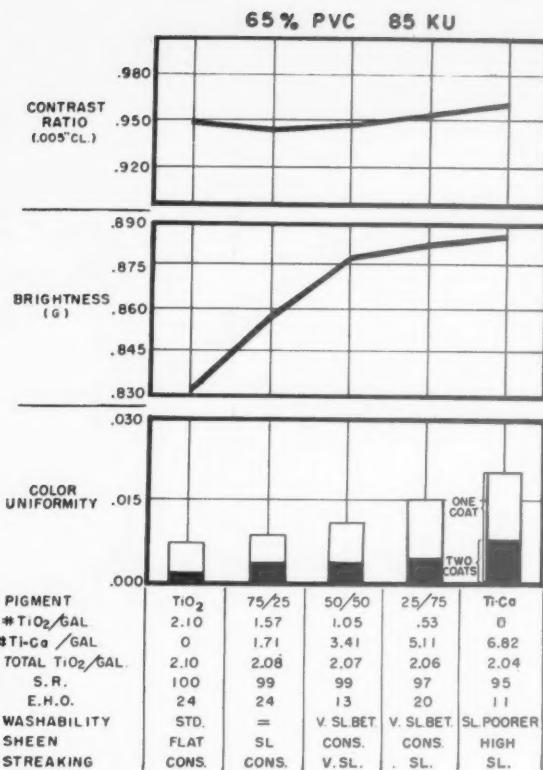


Figure 8  
**EFFECT OF EXTENDERS**

*TiO<sub>2</sub>/CaCO<sub>3</sub>/DIATOMACEOUS SILICA  
1.80/4.32/0.50 POUNDS/GAL.*

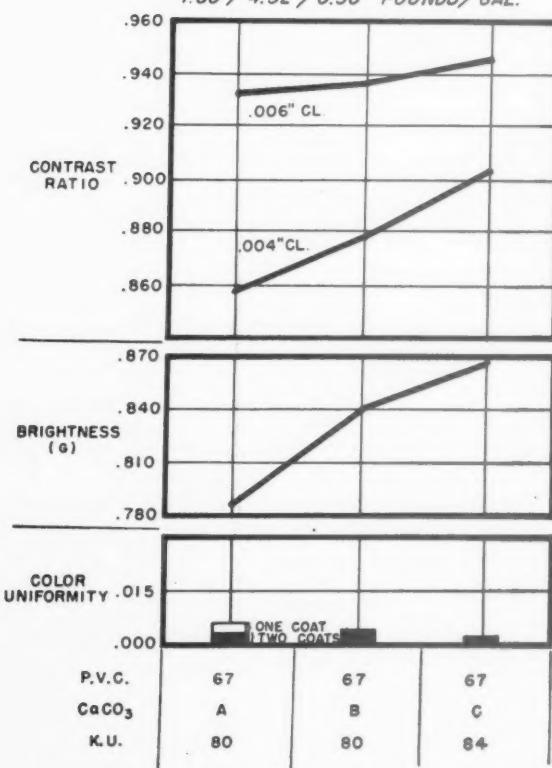


Figure 10. Effect of three different calcium carbonates

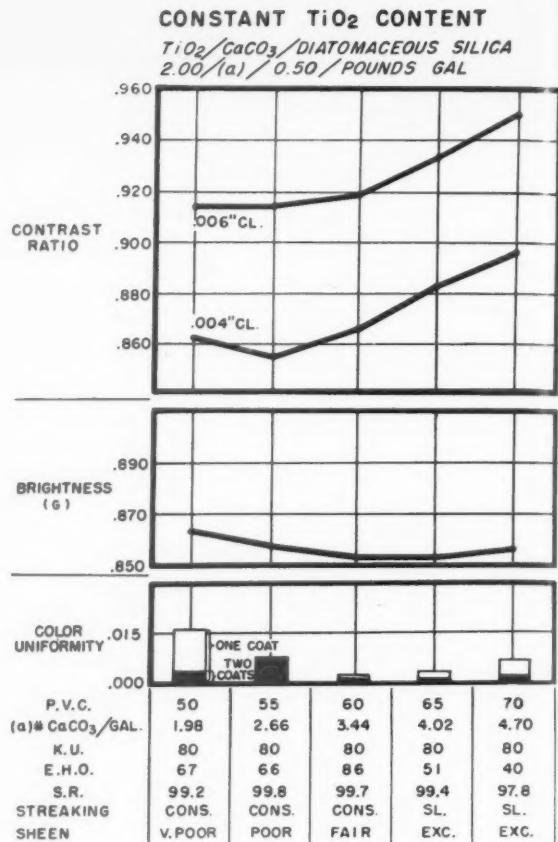


Figure 9. Studies based on blended system.

study P.V.C. ladders wherein the titanium dioxide content is held constant. Such a system has been developed and is described below.

The method consists of making two paints at the required pigment volume level, each containing the required amount of titanium dioxide and diatomaceous silica, but at different consistencies and different calcium carbonate contents, and then blending them to the desired consistency. The final formula is calculated from the blend.

To illustrate, paints A and B in Table 1, contained

(Turn to page 72)

Table 1. Formulae of Paints A, B and blend.

	PAINT A		PAINT B		BLEND	
	LBS.	GAL.	LBS.	GAL.	LBS.	GAL.
RUTILE TiO <sub>2</sub>	200	5.72	200	5.72	200	5.72
CALCIUM CARBONATE	600	26.58	400	17.72	470	20.82
DIATOMACEOUS SILICA	50	2.61	50	2.61	50	2.61
ALUMINUM STEARATE	4.5	0.59	3.5	0.45	3.9	0.50
SOYA LECITHIN	3.0	0.48	2.5	0.29	2.5	0.36
ODLESS ALKYD, 40%	34.2	47.36	25.6	35.40	28.6	39.55
25% PO VINYLPHENATE	2.2	0.23	1.7	0.18	1.9	0.20
6% CO	0.9	0.11	0.7	0.08	0.8	0.10
ANTI-OXIDANT	1.0	0.13	1.0	0.13	1.0	0.13
ODLESS MINERAL SPIRITS	125	16.19	237	37.42	190	30.01
	1306.6	100.00	1152.2	100.00	1206.7	100.00
PIGMENT VOLUME, %		70.0		70.0		70.0
CONSISTENCY, K.U.		129		63		80
GRAMS IN BLEND TO 80 K.U.		600		980		

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# ULTRAVIOLET LIGHT ABSORBERS

FIND USE IN CLEAR FURNITURE LACQUERS

By WALTER R. BRANDT\*  
and  
DR. LESLIE G. NUNN

**D**ISCOLORATION and darkening of furniture woods has become a major problem in recent years largely because of the increased popularity of light shade furniture. Research by furniture finish manufacturers and their raw material suppliers has given the furniture industry improved stains, pigments and lacquers having remarkable resistance to aging and sunlight, but these finishing ingredients were found to be relatively ineffective for preventing discoloration of the wood itself. It has recently been established that darkening of certain woods, especially those that have been chemically bleached, can be inhibited by applying a clear lacquer finish containing very small quantities of an ultraviolet light absorber.

## Effects of Ageing and Sunlight

First, it was necessary to determine what effect that aging and sunlight had on various woods and these studies showed, in general, that most woods darken and only a few are bleached to a substantially lighter color. Whether exposure to sunlight darkened or bleached a certain wood specie could not be predetermined by the wood's natural color or its extractives. For example, a light colored wood such as yellow birch and a dark shade wood such as eastern red cedar darken with age. A light colored wood such as white oak and dark colored wood such as black walnut bleach on exposure to sunlight. Further studies indicated that these color changes were the result of sunlight cata-

lyzed surface reactions and that each wood specie was affected differently by such surface reactions. It was further noted that prolonged exposure did not appreciably alter the wood's tendency to darken or lighten as shown in comparatively short aging and sunlight tests.

*Hercules Powder Company's* investigations with clear, practically colorless lacquers established the fact that the ultraviolet portion of sunlight was a major factor in wood discoloration. This conclusion was reached by the incorporation of an ultraviolet light absorber into the lacquer to ef-

fectively screen out the offending rays. Numerous commercial ultraviolet light absorbers were checked for compatibility and efficiency in a lacquer with a solids composition of 50:35:15 ratio of RS Nitrocellulose, "Cellolyn" 502 and dibutyl phthalate. Added to the lacquer, only two absorbers, "Uvinul" 400 and "Uvinul" 490, successfully screened out the sunlight wavelengths responsible for darkening of both natural and chemically bleached furniture woods. Of equal importance, it was shown that lacquers formulated with these absorbers did not interfere with the normal bleach-

Table I. Effect of Uvinul 490 on various furniture woods finished with lacquer\*\* and exposed to sunlight filtered thru window glass.

Trade Name and Source of Wood	Color of Unexposed Wood	Protective Action of Uvinul on Color of Exposed Wood
Andiroba (South America)	red-brown	none
Ash, white (U.S.A.)	light brown	good
Avedire (Africa)	yellow	good
Basswood (U.S.A.)	white	good
Beech (U.S.A.)	light red-brown	fair
Birch, yellow - heartwood (U.S.A.)	light brown	fair
Boxwood (Europe)	yellow	good
Butternut (U.S.A.)	light brown	fair
Cedar, Eastern red (U.S.A.)	red-brown	none
Cedar, Spanish (Central America)	red-brown	none
Cherry, black (U.S.A.)	red-brown	none
Elm (U.S.A.)	medium brown	fair
Hackberry (U.S.A.)	light brown	good
Holly (U.S.A.)	white	good
Limba (Africa)	gray-brown	good
Mahogany, African (Africa)	red-brown	none
Maple, hard (U.S.A.)	red-brown	good
Maple, soft (U.S.A.)	red-brown	good
Oak, red (U.S.A.)	light brown	good
Oak, white (U.S.A.)	light brown	none
Pine, white (U.S.A.)	light brown	fair
Poplar, yellow (U.S.A.)	light green	fair
Prima - Vera (South America)	yellow-brown	fair
Satinwood (India)	yellow-brown	none
Spruce, Western (U.S.A.)	light brown	good
Sycamore (U.S.A.)	light brown	fair
Teak (East Indies)	brown	fair
Walnut, black (U.S.A.)	chocolate-brown	none
Zebrawood (Africa)	brown striped	none

\* from "Color Stability in the Finish of Light Furniture," by Hercules Powder Co.

\*\* Two coats of a light-fast, heat-stable lacquer of 50:35:15 ratio of RS Nitrocellulose, 1/2-sec.:Cellolyn 502:dibutyl phthalate were sprayed on one-half of the panels. The same lacquer modified with 0.5 per cent Uvinul 490 was applied to the other half. The panels were exposed 15 days under glass to Florida sunlight.

Walter R. Brandt and Dr. Leslie G. Nunn are associated with Antara Chemicals, a Sales Division of General Aniline & Film Corp., 435 Hudson St., New York 14, N. Y.

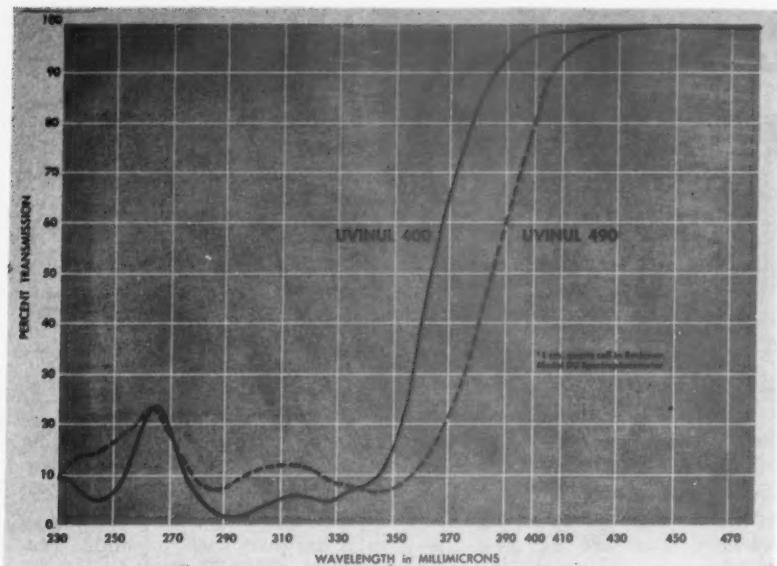


Figure 1. Transmission curves over the range from 230 to 430 millimicrons are shown for Uvinul 400 and 490 at concentrations of 2.5 mg. per 100 cc. in methanol.

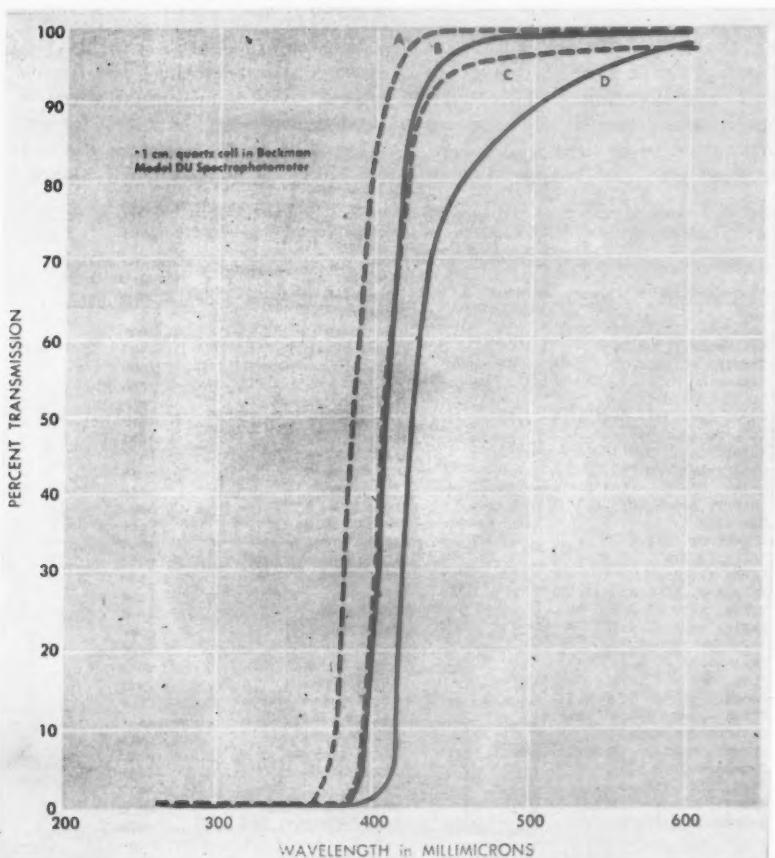


Figure 2. Absorption characteristics. This chart shows that the 490 type is approximately 10 times efficient as the 400 type at a given concentration. A-25mg. Uvinul 400/100cc methanol, B-25mg. Uvinul 490/100 cc methanol, C-250mg. Uvinul 400/100cc methanol, and D-250mg. Uvinul 490/100cc methanol.

ing effect that sunlight has on white oak and black walnut.

Studies were then extended to many other furniture woods using a lacquer containing 0.5% 490 type based on weight of lacquer solids. The 490 type was selected for these tests because this brand was shown to be effective in smaller percentages, and therefore more economical than the 400 type. The only advantage that the 400 type has over 490 type is that it imparts practically no color to a clear lacquer film whereas 490 type gives the film a faintly yellow tint. Details on the test procedure are described in the footnote to Table I. In general, the 490 type afforded good protection to a relatively large number of woods during the 15 day Florida exposure tests but it did not provide protection to every type of wood. It was also found that ultraviolet lamp exposure was unsatisfactory and gave less reliable results than exposure to sunlight filtered through window glass.

#### Theory of Light Absorption

The theory of light absorption as well as the chemistry and properties of the "Uvinuls" is helpful in understanding how these absorbers function. Light is a form of radiant energy whose principal properties can best be described in terms of a wave motion. The wavelength is the property commonly used to define and describe light phenomena. Light wavelengths between 400 and 800 millimicrons are detectable by the human eye and produce the sensation of color. This range of wavelengths is called the visible part of the electromagnetic spectrum. Light wavelengths shorter than 400 millimicrons are called ultraviolet light because they are beyond the violet end of the visible spectrum while light wavelengths longer than 800 are beyond the red end of the visible spectrum and are called infrared light.

All chemical compounds absorb some forms of radiant energy. Most do not absorb in the visible spectrum and are colorless to the eye. Those which absorb visible light and appear colored form the basis for our dyestuff and color industries.

The absorption of light is re-

qently accompanied by chemical changes many of which are familiar phenomena and are of great economic significance. Perhaps the best known of these is the fading of textiles caused by exposure to sunlight. Others include sunburning, suntanning and the degradation of many materials such as textiles, lacquers, paints, plastics, leather, etc. Efforts to overcome these effects have taken two directions: (1) attempts to build inherent light-stability into materials and (2) attempts to find additives to protect the substrate. The first approach has probably received more attention. Recently, considerable effort has been expanded in a search for additives which by absorption of ultraviolet light will protect the basic material. These compounds are incorporated either into the material to be protected or in a surface coating.

Most, if not all, of the compounds heretofore available for this purpose had the severe weakness that they themselves were not light stable. Thus, the azines of aromatic aldehydes, while good absorbers themselves, decompose quickly under exposure conditions. For some applications, such as in sun-tan lotions, this is not a serious disadvantage since the sunscreening agent is renewed with each application and only a few hours of ultraviolet light stability is required. In many applications, such as in furniture lacquers, the absorber is of little value if it is itself destroyed after a few hours of exposure.

"Uvinul" 400 and "Uvinul" 490 are substituted benzophenones which were developed by the *Central Research Laboratory of General Aniline & Film Corporation*. Application research conducted by this group showed these two chemicals to be effective absorbers of ultraviolet radiations without being destroyed by such radiations.

The most significant property of these compounds is their ability to absorb ultraviolet light. In general, light or any other form of radiant energy incident on a transparent body is partly reflected, partly absorbed and partly transmitted.

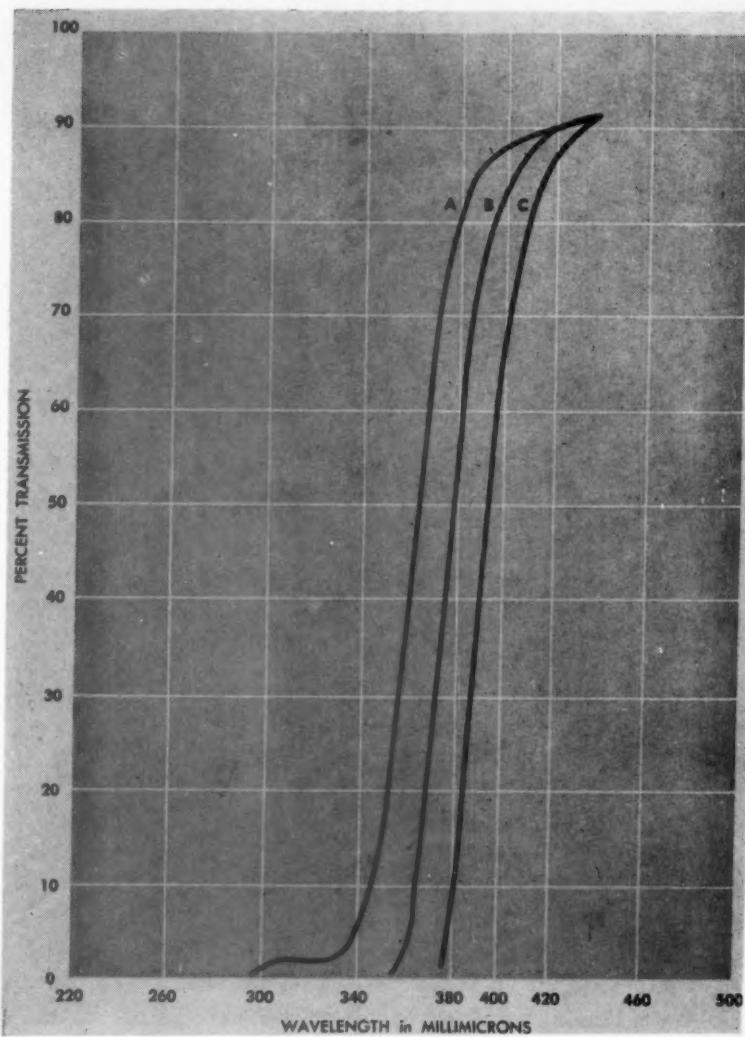


Figure 3. Transmission data on 5 mil cellulose acetate films containing 0.25%, 1.0%, 7.5% Uvinul 400

When considering the effect of an absorber in a specific film, the small and constant effect of reflectance can usually be ignored. In considering applications for "Uvinuls," the relation between transmission and absorption at a given wavelength can be conveniently represented by the following equation:

Percent Transmission equals 100 minus the percent total absorbance of medium and absorber

#### Transmission Data

Transmission curves over the range from 230 to 430 millimicrons are shown in Figure 1 for "Uvinuls" 400 and 490 at concentrations of 2.5 mg. per 100 cc.

in methanol. The following points are of interest:

1. Although the percent transmission varies slightly with the wavelength over the range from 230 to 340 millimicrons, it is very low and is effectively 0% at practical use concentrations.
2. At equal concentrations, the effective absorbing range of the 490 type is about 20 millimicrons nearer to the visible region than in the case of the 400 type.
3. Transmission of visible light (400-800 millimicrons wavelength range) is only slightly affected by the absorbers. The 490 type absorbs the short wavelengths in the visible spectrum but the 400 type does not.

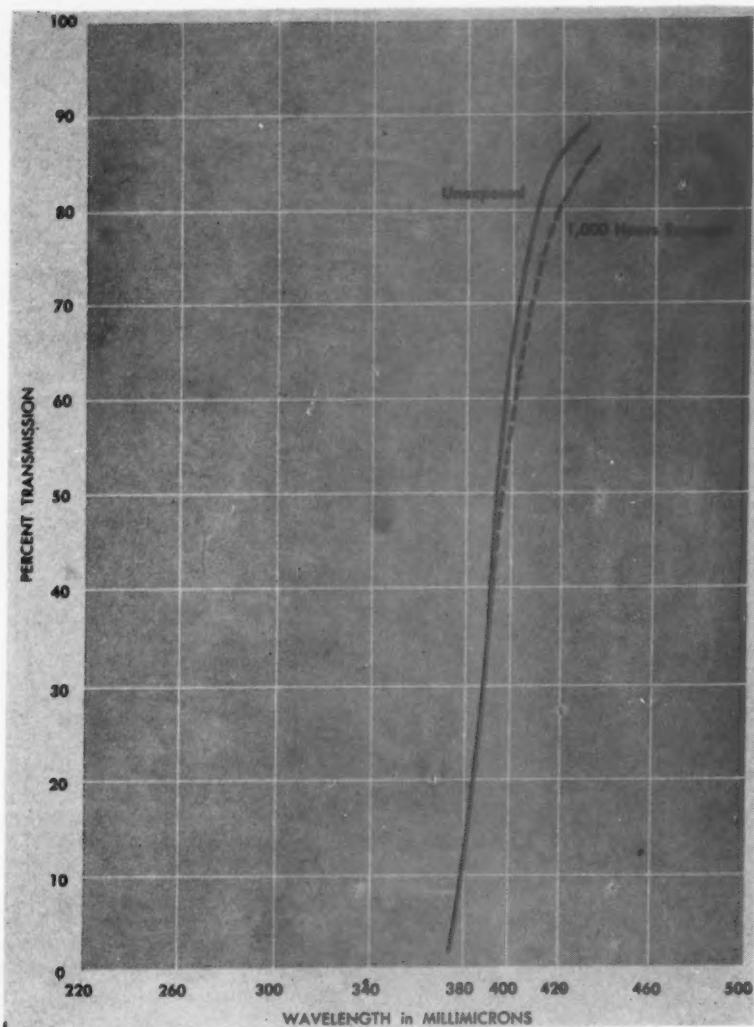


Figure 4. Transmission of a 55 mil film of polymethylmethacrylate containing 1% of Uvinul 400 before and after Fadeometer exposure.

Table II

Composition and Properties of the Uvinuls		
	Uvinul 400	Uvinul 490
<b>Chemical Composition</b>	<b>substituted benzophenone</b>	<b>substituted benzophenone</b>
	approximately 100%; contains only traces of inorganic salts	approximately 100%; contains only traces of inorganic salts
<b>Activity</b>	cream powder	tan powder
<b>Physical Appearance</b>	Uvinul soluble in solvent on a weight basis	
<b>Solubility* in</b>		
Methanol	40%	3%
Ethanol	40%	5%
Ethyl Acetate	30%	35%
sec-Butyl Acetate	25%	23%
Methyl Ethyl Ketone	45%	40%
Toluene	Less than 1%	Less than 1%
Xylene	Less than 1%	Less than 1%

\*Since both products contain traces of insoluble materials, it may be desirable to clarify solutions prepared with the above lacquer solvents.

The light yellow color of the 490 type is responsible for absorption in this range.

The effect of increasing absorber concentration is shown in Figure 2. Increasing the concentration of the absorber extends the range of protection toward the visible. Figure 2 shows that the 490 type is approximately ten times as efficient as the 400 type at a given concentration.

Transmission data on 5 mil cellulose acetate films containing 0.25%, 1.0% and 7.5% "Uvinul" 400 are shown in Figure 3. These curves should not be compared with those in Figures 2 and 4 because both the medium and the thickness of the absorbing layer are different. Whenever an absorber is incorporated into a film it is preferable to use a lower concentration in a very thin film.

#### Other Properties

The stability of "Uvinul" 400 to ultraviolet and visible light is illustrated in Figure 4. After 1000 hours in the "Fadeometer," a 55 mil film of polymethylmethacrylate containing 1% absorber was darkened only very slightly. The absorber also improved ultraviolet stability of the polymer.

Both absorbers have good storage stability and can be stored at room temperature for extended periods of time. They can also be used at elevated temperatures under certain conditions. For example, "Uvinul" 400 has been heated at 240°C for 30 minutes without loss in efficiency and can be compounded with other materials under comparable conditions. "Uvinul" 490 has been successfully used in hot spray lacquers under normal conditions.

Solubility data given in Table II show that the light absorbers are soluble in common active lacquer solvents such as alcohols, esters and ketones, but are insoluble in most hydrocarbon solvents. Their insolubility in hydrocarbon solvents precludes their use in varnishes.

#### Test for Discoloration

The Antara Chemicals laboratory has found UVHC Film (Ozalid, Johnson City, New York)

(Turn to page 69)

# BELGIUM'S ASTRAL-CELLUCO PLANT

*USES AMERICAN, BRITISH, AND GERMAN EQUIPMENT*



General view of manufacturing facilities



View of control laboratory



Pilot plant laboratory

One of the leading paint plants in Belgium, the Astral-Celluco Ltd., of Brussels, specializes in the manufacture of a line including, high-grade varnishes, rubber-based paints, lacquers, synthetic enamels, and vehicles.

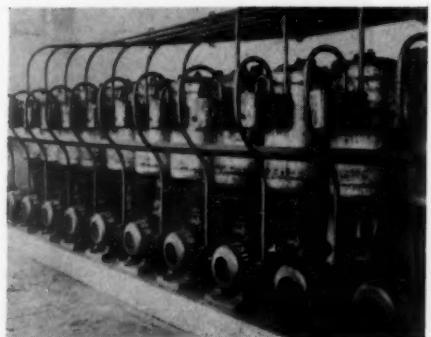
Layout of this plant, manufacturing and laboratory facilities are shown in the following photographs. Equipment used is British, American, and German-made.

This firm began operating some 58 years ago, and presently its vast productive capacity is not only supplying paints to the Belgian Navy, Air Force and Army, but will meet the needs of the firm's contemplated export market abroad.

View of varnish cooking facilities



Underground storage of lacquer solvents



Pumping installations for distributing solvents



View of ball and pebble mill facilities

## SCENES FROM CLEVELAND PRODUCTION CLUB STAG OUTING HELD AT MILLER'S BROADWAY CLUB



The annual stag outing of the Cleveland Paint and Varnish Production Club was held on July 17th at Bessie Miller's Broadview Club. One hundred and twenty members and guests took part in afternoon games and contests, both strenuous and otherwise, and were then served a chicken dinner. The views above graphically indicate how the group enjoyed itself.

The guests were welcomed by President William M. Tomc. W. D. Mitchell of the Ferro Chemical Company presented the Ferro Golf Trophy to the club in behalf of his organization. In accepting it for the club, President Tomc announced that the first winner of this annual competition was Clayton H. Konker of Ferbert Schorndorfer Company. Perman-

ent possession of the trophy will pass to the first member of the club winning it three times, not necessarily in succession.

Charles J. Strand of Parr Paint Company won the grand prize, while numerous other prizes were awarded to the various contest winners, and holders of lucky tickets. Vincent L. Sahli was in charge of arrangements.



## Chicago Paint Club to Handle Affairs of Federation Meeting

E. J. Murphy, of Montgomery Paint Works, will head the 26 members of the Chicago Paint and Varnish Production Club who will handle the arrangements for the 32nd Annual Meeting of the Federation of Paint and Varnish Production Clubs, to be held at the Palmer House, Chicago, Ill., November 18, 19 and 20, 1954.

Mr. Murphy will serve as General Chairman of the Host Committee and will be assisted by the following sub-committees:

Registration—Richard Gohman, Standard-Toch Chemicals, (chairman); R. R. Bruhn, Sherwin-Williams Co.; W. L. Hancock, Martin-Senour Co.; W. S. Houck, Glidden Co.; Ray V. Jablon, Illinois Paint Works; E. F. Jago, Great Lakes Paint & Varnish Co.; E. H. Miller, Midland Industrial Finishes; B. Orwig, Sherwin-Williams Co.; and H. E. Schade, Armstrong Paint & Varnish Works.

Banquet—C. M. Scholle, Jewel Paint & Varnish Co., (chairman); S. Danoff, Midland Industrial Finishes; and R. J. Gnaedinger, John A. Steen Varnish Co.

Entertainment—T. F. Byron, Armstrong Paint & Varnish Works, (chairman); W. C. Ashley, Pyroxylin Products Inc.; and L. E. Ludwig, Sherwin-Williams Co.

Dance—C. F. Tilgner, Illinois Paint Works, (chairman); C. Kosek, Wilson & Co.; and D. T. Woods, Armstrong Paint & Varnish Works.

Floor—R. Mountsier, Illinois Paint Works, (chairman); A. Bohnert, Enterprise Paint Mfg. Co.; A. E. Counter, Baker Chemical Co.; T. L. Dahlberg, Jr., John A. Steen Varnish Co.; W. Fritsch, Enterprise Paint Mfg. Co.; Carl Lemcke, McWhorter Chemicals, Inc.; and G. R. Penn, Bradley-Vrooman Co.

The Host Committee works under the supervision of the Federation Meetings Committee which is led this year by Raymond C. Adams, of the Southern Club. Mr. Adams is assisted by W. C. Ashley, A. F. Bohnert, J. E. Gager, T. L. Dahlberg, and M. A. Gager, of the Chicago Club; M. B. man, of the New York Club; J. E. H. Meyer, of the Dallas Club; J. S. S. of the Northwest Club; and D. D. Wyatt, of the Southern Club.



## Pres. Joseph F. Battley of NPVLA Receives Life-Size Oil Portrait

Brig. Gen. Joseph F. Battley, USA Ret., President of the National Paint, Varnish and Lacquer Association, was presented a handsomely framed life-size oil portrait of himself by friends and associates in the industry at the Association headquarters at a recent stag reception.

The gift portrait is the work of Marcella Comes, Washington artist, and will hang in the foyer of the historic 1500 Rhode Island Avenue, N. W., headquarters building of the National Paint, Varnish and Lacquer Association. This Washington landmark was originally built by Gardner Green Hubbard, founder of the National Geographic Society, and then became the home of Alexander Graham Bell. Later it be-

came the property of Vice-President Levi P. Morton, then the Russian Embassy, and subsequently served as the Washington residence of Secretary of State Elihu Root and Secretary of Treasury Ogden Mills before the Association acquired it in 1940.

General Battley, a native of Virginia, served 30 years in the Regular Army, and held numerous important assignments in the United States and overseas. General Battley was the recipient of many honors and decorations, including the Distinguished Service Medal and the Legion of Merit. His last assignment was as Executive Officer to General J. Lawton Collins, then Army Chief of Information in the Office of the Chief of Staff, General Eisenhower. He was elected President of the National Paint, Varnish and Lacquer Association in November 1947.

## Arthur D. Little, Inc. Acquires Merrill Co. of San Francisco

Arthur D. Little, Inc. has acquired the research and development division and laboratories of The Merrill Company, a well-known metallurgy and engineering firm in San Francisco, it was announced recently by Earl P. Stevenson, president of Arthur D. Little, Inc., and John L. Merrill, president of The Merrill Company. The announcement was made before 250 West Coast manufacturers during a luncheon at the

Sir Francis Drake Hotel.

ADL has recently established an office in San Francisco as a base for its West Coast technical-economic survey work. This work includes industrial market research, diversification studies, and other management services. The acquisition of the Merrill laboratories, now to be known as the Western Laboratories Division of Arthur D. Little, Inc., will immediately make research and product development by ADL conveniently available to West Coast industry.

## NEWS DIGEST

### ACS Paint Div. to Feature Two Symposia at Sept. 12-17 Meeting

The Division of Paint, Plastics and Printing Ink Chemistry of the American Chemical Society will be one of the participating groups in the 126th National ACS Meeting scheduled Sept. 12-17, at Hotel Governor Clinton in New York City.

John K. Wise and Allen L. Alexander are chairman and secretary of the Division, respectively.

Program details of the Division, pertaining to paint chemistry, are as follows:

#### Monday, Sept. 13

AFTERNOON SESSION: John K. Wise, presiding.

2:00—1. John K. Wise, Introductory Remarks.

2:10—2. W. K. Asbeck, G. A. Scherer, and Maurice Van Loo. *Paint Viscosity and Ultimate Pigment Volume Concentration (UPVC)*.

2:40—3. S. B. Crecelius, R. E. Kagarise, and Allen L. Alexander. *Studies of the Mechanisms of Drying Oil*

*Oxidation, Film Formation, and Degradation.*

3:10—4. E. F. Carlston and F. G. Lum. *Isophthalic Acid-Application in Oil Modified Alkyd Resins.*

3:25—5. E. F. Carlston, F. G. Lum, and G. B. Johnson. *Isophthalic Acid-Application in Unsaturated Polyesters.*

3:40—6. L. Reed Brantley, John Charnell, Barbara Stott, and Kenneth Bills, Jr. *A Study of the Adhesion to Aluminum of an Ethyl Cellulose Lacquer in Relation to Certain of Its Film Properties.*

4:00—7. L. H. Brown and P. G. Huett. *Curing Characteristics of Furfuryl Alcohol Polymers.*

#### Tuesday, Sept. 14

MORNING SESSION: A. C. Zettlemoyer, presiding.

7:30 Program Speakers' Breakfast.

9:00—8. C. W. Sweitzer, F. Lyon, and T. S. Grabowski. *The Cure of Carbon Black-Unsaturated Polyester Mixtures.*

9:30—9. Raymond R. Myers and A. C. Zettlemoyer. *A Mechanical Model for the Flow of Dispersions.*

10:00—10. R. P. A. Sims. *Empirical Viscosity of Heated Vegetable Oils.*

10:30—11. G. A. Hudson, B. G. Brand, and E. G. Mueller. *An Evaluation of Organic Coatings for the Protection of Domestic Hot Water Tanks in Con-*

*junction with the Use of Magnesium Anodes.*

11:00—12. G. C. Frantz, J. W. Sanders, and F. L. Saunders. *Studies on Agglomeration of Synthetic Latexes with Thickening Agents.*

12:15 Advisory Committee Luncheon. AFTERNOON SESSION: John K. Wise, presiding.

2:00—13. John K. Wise. Introductory Remarks.

2:05—14. H. F. Payne. *Types of Interior Wall Finishes.*

2:20—15. A. E. Kromer and A. Olotka. *Developments in Oleoresinous Types.*

2:50—16. Donald A. Kohn, Jr. *Developments in Water Dispersible Types.*

3:20 *Panel Discussion.*

3:50 Business Meeting.

#### Wednesday, Sept. 15

MORNING SESSION: Wayne Norris, presiding.

7:30 Program Speakers' Breakfast.

9:00—17. Wayne Norris. Introductory Remarks.

9:10—18. C. F. Pickett. *Properties and Use of Styrenated Alkyds and Other Monomer Modifications.*

9:30—19. Fred S. Leutner, Edward L. Bobalek. *Styrene Modification of Oils and Alkyds.*

10:00—20. L. Shechter and J. Wynstra. *The Styrenation of Alkyds Having Controlled Maleic Functionalities.*

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10:30—21. W. A. Henson, F. J. Buege, and W. E. Johnson. *Vinyltolueno-Divinylbenzene Modification of Drying Oils.*

**AFTERNOON SESSION:**

2:00—22. J. C. Petropoulos, L. E. Cadwell, and W. F. Hart. *Acrylonitrile as a Modifier in Styrenated Alkyd Resins.*

2:30—23. William M. Kraft. *Vinyl Monomer Modification of Drying Oils and Alkyds Based on Tr methylolethane and Glycerol.*

2:50—24. Roy W. Tess and Hans Dannenberg. *Treatment of Some Vegetable and Fish Oils by Di-tertbutyl Peroxide.*

3:20—25. Edward G. Bobalek and J. R. Brandford. *Radiotracer Studies of Analytical Methods for Styrenated Alkyd Resins.*

3:50—26. R. W. Stafford, R. C. Hirt, and W. G. Deichert. *Instrumental Aspects of the Analysis of Styrenated Alkyd Resins.*

4:10 Panel Discussion.

6:30 Divisional Dinner. Jointly with the New York Paint and Varnish Production Club, at the Brass Rail, 100 Park Avenue.

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**Talk on Color to be Featured  
At N. Y. Club September Meeting**

"Color—How the Eye Sees it and Instruments Measure it" will be the subject of a talk to be presented before the joint meeting of the New York Paint and Varnish Production Club and the Division of Paint, Plastics and Printing Ink Chemistry of the American Chemical Society on September 15, 1954. The first regular meeting of the Fall Season for the New York Club has been changed from the usual first Thursday to the third Wednesday because of the joint meeting. Dinner will be served, as usual, at 6:30 at the Brass Rail Res-

taurant, 100 Park Ave., New York City.

Dr. Eugene Allen of the American Cyanamid Company will present the talk on color. Dr. Allen, a native of New Jersey obtained his B. S. Degree from Columbia in 1938, his masters degree from Stevens in 1944 and his Doctor of Philosophy from Rutgers in 1952. He has worked for American Cyanamid since 1954.

"Color: How the Eye Sees it and Instruments to Measure it" presents the idea that color can be measured by instrument and expressed on numerical scales is not new. The theory of color measurement has been well worked out over a period of some 25 years. However, the practical application of this idea to industrial problems is just beginning to be appreciated.

There are many advantages resulting from the use of a numerical rating system for colors based on instrumental measurement. Some of these are buying and selling of colored materials on a specification basis, efficient control of production of colored products such as paints, inks and plastics, more precise interpretation of the results of evaluation tests on colored materials, and the exact measurement of color differences.

In talking about instrumental measurement, it is necessary to have a clear understanding of what the eye sees when it looks at a colored material. Visually, color can change in three ways. This means that it takes three separate types of rating to specify a color completely. One of these, hue, tells whether a color is red, green, or yellow. Another, lightness, tells how much light energy hits the eye. The more light the eye sees, the lighter the color will be. The third, saturation, tells how intense the color is, or, in other words, how far away from a gray of equivalent lightness. If you specify a color in terms of these three quantities, you have specified it completely (except for such effects as floss or bronze).

The most fundamental way of measuring a color by instrument is to determine its spectrophotometric curve. From this curve you can calculate the tristimulus values can then be converted into quantities which closely approximate hue, saturation and lightness. This is the basis of the instrumental method of color measurement.

Several applications of the instrumental technique will be described. These include problems involving control of the color of finished products, mapping of colors in a sales catalogue for easier comprehension of the color line by the customer, evaluation of fading test results, and the other practical problems where color measurement can be used to advantage.



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The underside and cowling of this Hercules-owned DC-3 have been given a single coat of hot lacquer over a primer. Aircraft manufacturers and airline maintenance crews are finding that hot lacquer can cut the number of coats and application time in half.

**WHITE CHRISTMAS ASSURED**

"Snow" from aerosol dispensers now insures the right decorative Christmas touch no matter what the weather outside. Here "snow" is being packaged in the Hercules Protective Coatings Laboratory with ethyl cellulose.

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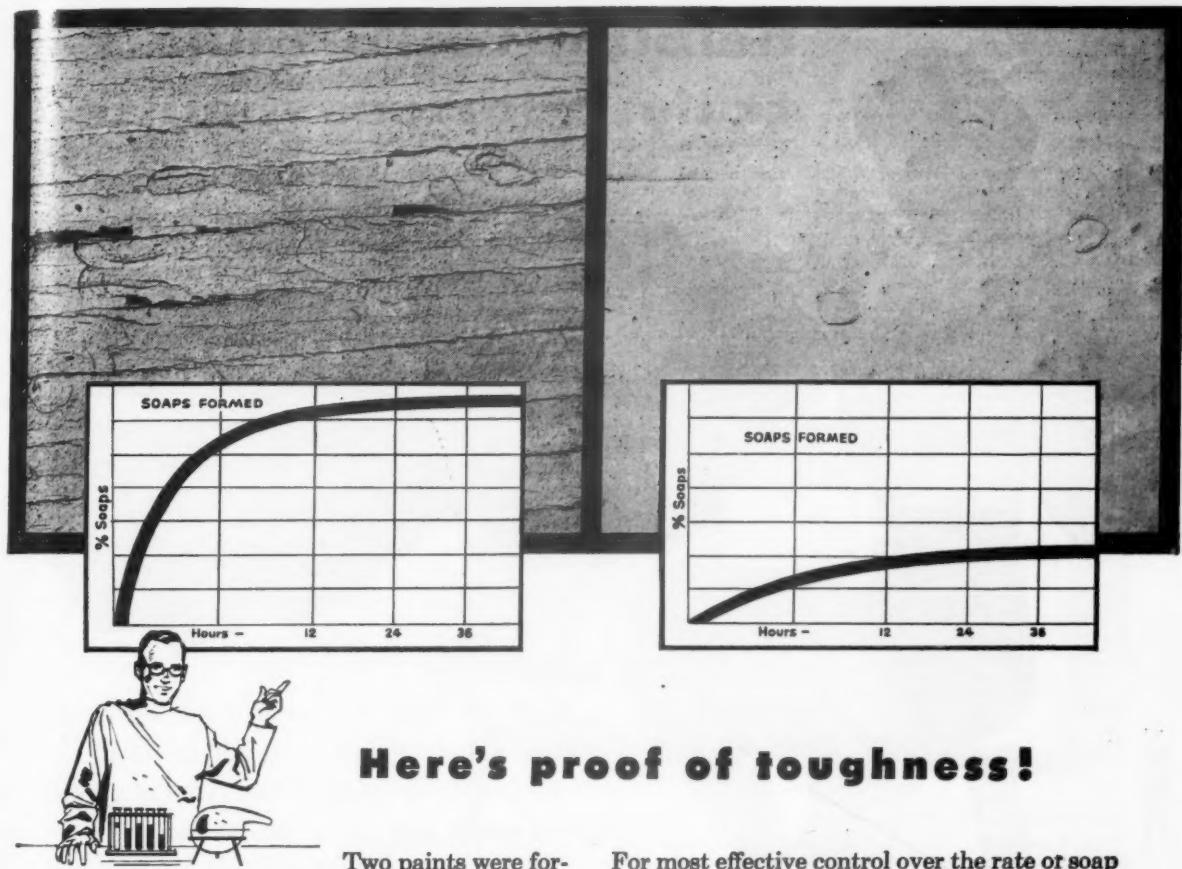
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## Baker Co. Appointed Sales Rep. For Hilton-Davis in Minnesota

Appointment of the M. H. Baker Co. as sales representatives to the protective coatings industry and allied fields in Minnesota and neighboring areas, has been announced by Nelson S. Knaggs, vice-president in charge of sales, Hilton-Davis Chemical Co., Cincinnati, Ohio.

M. H. Baker will personally direct operations. He is a member of the American Chemical Society, Chemical Market Research Association, American Institute of Chemical Engineers, Paint, Varnish and Lacquer Association, and others.

## Eagle-Picher Announces Acquisitions of 2 Firms

The Eagle-Picher Company has purchased 296,386 shares, or 98.8% of the common stock of Fabricon Products, Inc. for \$9,780,738. This stock was acquired through the exercise of options and by deposits made in acceptance of The Eagle-Picher Company's offer to purchase all of the outstanding stock at \$33 per share. Fabricon Products, Inc. has no funded debt or preferred stock.

The Eagle-Picher Company has also purchased from Calumet & Hecla, Inc. its zinc properties in the Wisconsin-Illinois field comprising leaseholds on approximately 3650 acres of land, as well as a mill, supplies and materials. Calumet & Hecla, Inc. has operated these properties continuously since 1948 when they were acquired from a development subsidiary. This acquisition will more than double Eagle-Picher's zinc ore reserves in the Wisconsin-Illinois area.

During 1953 The Eagle-Picher Company purchased the mining properties and equipment of Bilharz Mining Company and the Gordon mine of American Smelting & Refining Company pursuant to its policy of increasing domestic reserves of zinc ore whenever favorable opportunities arise. Its chief mining activities presently are in the 3-State District (Missouri, Kansas, Oklahoma), and in Mexico.



M. H.  
Baker

## O'Brien Sales Head Points Out Opportunities for Paint Contractors

"The painting contractor has lots to sell in today's competitive do-it-yourself market, and he can sell it by attractive presentation and publicity of his service," stated R. P. Cook, General Sales Manager of the O'Brien Corporation, before a recent meeting of more than 500 members of the Wisconsin Council of the Painting and Decorating Contractors of America.

In a talk titled "The Painting Contractor's Merchandising Opportunities" Cook went on to say that there is much concern by the painting contractor regarding the growth of the multi-billion dollar do-it-yourself market. However, he pointed out, this growth has meant opportunities for everyone, particularly the contractor who can increase his sales by promoting himself.

"People will always pay for a quality product," Cook said. "When a person hires a contractor, he gets expert advice on color selection, the right choice of the right product, and a paint job that will stand up over the years. The contractor must show the buyer how his services will save money through less upkeep and longer lasting finishes."

Cook listed ways the contractor could merchandise his services through advertising, truck identification, and door-to-door calls.

"And use a little showmanship," he concluded. "You are all in the business of selling the most colorful product made—paint. So put a little color on your trucks, your calling cards, your overalls, or your offices. When you call attention to you and your business, increased sales will follow."

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Film Properties				
Sward Hardness—100% alkyd	18	6	4	2
80% alkyd—20% melamine	34	21	19	16
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% Increase in yellowing	71-	78	91	100



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### Symposium on Drying Oils to be Presented at AOCS Convention

The Paul Bunyan Convention of the American Oil Chemists' Society will be held in Minneapolis on October 11, 12, and 13.

From a technical point of view, the Minneapolis meeting of the American Oil Chemist's Society is to be highlighted by four symposia and a large number of general papers covering virtually every aspect of the oil industry.

Dr. A. M. Schwartz of Harris Research Laboratories will head a symposium entitled "Applied Research on the Utilization of Surfactants". Dr. D. H. Wheeler, of General Mills, Inc., is in charge of a symposium on new analytical methods for fats and oils. Marvin Formo of Archer-Daniels-Midland Company will head a symposium on drying oils, whereas A. W. Wahlroos of A.D.M. is in charge of a symposium on pollution and waste disposal in relation to the fat and oil industry.

The general papers will be concerned with miscellaneous aspects of detergent research, oil refining, edible oil technology, newer aspects of antioxidant chemistry, the chemistry of oxidative and heat polymerization, drying oil technology, lipids in cereals, phosphatide chemistry, market studies in the field of fats and oils, epoxidation, and

a variety of miscellaneous subjects.

All in all, the program will include a record high of 80 to 90 papers, which will make necessary concurrent sessions throughout the meeting.

Of interest to the technical men of the paint and varnish industry is the Drying Oil Symposium. Dr. Marvin Formo is in charge of this particular symposium and the following papers will be presented.

1. S. O. Sorenson (Archer-Daniels-Midland Co.) "Interrelationship of Supply, Price and Use of Fats and Oils".
2. F. A. Kummerow, et al. (University of Illinois) "Oxidation of Methyl Linoleate."
3. *Ibid.* "Oxidation of Methyl Linoleate".
4. Wouter Bosch (North Dakota Agricultural College) "Polymerization of Epoxidized Oils".
5. J. C. Cowan (U. S. Department of Agriculture) "Glyceride Composition".
6. *Ibid.* "Hypochlorite Oxidation of Drying Oils".
7. E. W. Eckey, R. O. Alderson, and R. J. Woestman (E. W. Eckey Research Laboratories) "Production of Polyvinyl Esters by Ester Interchange."
8. H. J. Lanson (General Electric Co.) "Segregation of Oils".
9. R. W. Tess (Shell Development Co.) "Oleoresinous Varnishes From Epoxy Resins and Drying Oils."
10. Forum Discussion
- a. Keynote by H. W. Barr, Jr. and O. Wilhelmy (Battelle Institute) "Research-the Key to future markets for drying oils".
- b. 5 minute discussion by W. O. Lundberg. (Hormel Institute) "Unsolved problems concerning the oxidative behavior of film formation".
- c. 5 minute discussion by R. D. Davis (E. I. du Pont de Nemours Co.) "Unsolved problems in utilization of drying oils in protective coatings".
- d. 5 minute discussion by R. L. Terrill (Spencer Kellogg Co.) "Unsolved problems in the modification of drying oils."

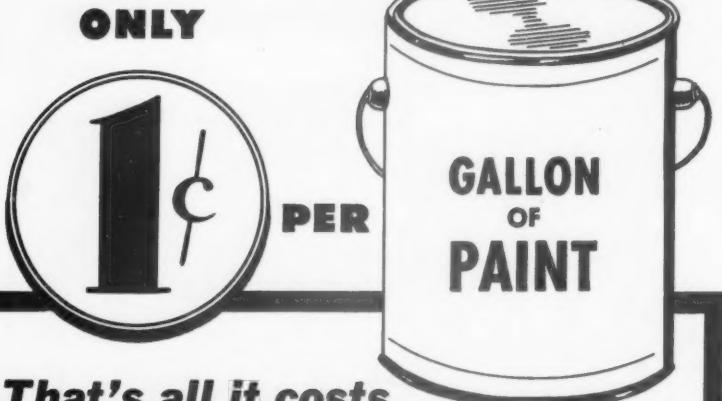
### Committee Chairman Named for 1956 Material Handling Show

C. B. Elledge, president of The Material Handling Institute, announces the formation of a special committee to direct the Institute's activities in connection with the material handling exposition to be held in Cleveland in 1956. R. H. Davies, Vice-President, Clark Equipment Company, has been appointed chairman.

Elledge also announced that the proceeds of the MHI's 1956 exposition would be used to finance educational programs to serve the entire material handling industry.

### Rice & Co. Representing PICCO in Cleveland

Pennsylvania Industrial Chemical Corporation, Clairton, Pennsylvania, announces the appointment of Rice & Company as its representative in Cleveland. This firm operates from Detroit's PICCO office.



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### Improved Refining Techniques Spur Industrial Use of Tall Oil

A prediction of continuing rapid expansion of industrial usage of tall oil was made at Lehigh University by Richard Herrlinger of American Cyanamid Company's Stamford, Conn. research laboratories.

He appeared before participants in the American Oil Chemists' Society short course, August 16-20, on inedible fats and fatty acids of which Dr. Daniel Swern, of the Department of Agriculture's Eastern Research Laboratory, was chairman.

Tall oil, the low-cost, stable source of inedible fatty acids and of rosin derived as by-products of the rapidly growing southern kraft paper industry, is widely used by paint and varnish producers and the surface coating, soap, detergent, paper and chemical industries. Among other industries benefiting from the technological advances and improvements achieved in the last ten years by both producers and users of tall oil products are linoleum and floor coverings, metallic driers, disinfectants, flotation reagents, core oils and asphalt additives.

Explaining that tall oil production has increased rapidly from 50,000 tons in 1943 to 175,000 tons in 1953, Mr. Herrlinger said:

"Processing methods have been developed which allow not only the production of products of higher purity, but also the substantially complete separation of tall oil into rosin and fatty acids.

"Fatty acids substantially free from rosin acids and rosin substantially free from fatty acids are now being produced. With continued growth of the industry, and future advances in tall oil technology, products of even greater refinement and wider utility may be expected in the not too distant future."

A major reason for the growth of tall oil production is the economical and stable source of 'black liquor soap'—a by-product from the manufacture of kraft paper by the sulfate paper process—from which tall oil is made, Mr. Herrlinger continued.

"A dependable supply of 'black liquor soap' has kept the price of crude tall oil fairly steady during the last eight years," he stated.

"This is in contrast to the fluctuating prices for other inedible oils and for rosins during the same period of time.



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is  
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The price of tall oil, as compared to the much higher prices of fatty acids and rosin, has inspired chemists and engineers to upgrade tall oil products and to attempt its separation into rosin and fatty acids. The hundreds of patents issued and numerous papers published since the beginning of the century, when tall oil was first discovered in Sweden, give testimony to the imagination and resourcefulness which has been applied to these problems."

Pointing out that the major processes of tall oil manufacture now fall into three principal groups—acid refining, distillation and fractional distillation—Mr. Herrlinger said that the problem of complete separation of tall oil into fatty acids and into hard vitreous rosin comparable to gum and wood rosin was finally solved by a more elaborate fractional distillation process.

Developed in the laboratories of the American Cyanamid Company, he explained, this process employed the newest fractional distillation techniques and equipment design, and achieves the separation of tall oil into fatty acids with a rosin content as low as 1% fatty acids. This process is now being carried out on a large scale at the Panama City, Fla. plant of the Arizona Chemical Company, a company owned jointly by American Cyanamid Company and International Paper Company.

"Complete separation has produced fatty acids which, due to their low rosin and unsaponifiable content, have moved into the class of semi-drying oils and fatty acids," he stated.

"The rosin obtained by the complete fractionating process," he added, "has been admitted under the Naval Stores Act as tall oil rosin and is the only

rosin derived from tall oil defined under this Act. Obtained in very pale color grades, tall oil rosin is characterized by a low unsaponifiable content, high softening point, low fatty acid content and freedom from impurities."

#### Cabot Opens Chicago Sales Office.

Godfrey L. Cabot, Inc., Boston Massachusetts chemicals manufacturing firm, announces that its newly established Chicago, Illinois office will be under the direction of Mr. Francis H. Browning.

Sales of all Cabot products, including carbon blacks, pine tar products, Wollastonite, Cab-o-sil, kaolin and plastics chemicals will be made from this office to customers in the Illinois, Minnesota and Wisconsin areas. Adequate warehouse stocks will be maintained in Chicago. A staff of Cabot men thoroughly familiar with the company's various products and their end uses, will be available for customer assistance. Carbon blacks to certain consumers in the Midwest will continue to be handled by the Tumpeer Chemical Company.

The Godfrey L. Cabot, Inc. office is located at the Board of Trade Building, Room 2030, 141 West Jackson Boulevard, Chicago 4, Illinois.

#### New \$300,000 Honolulu Fuller Branch to Open in December

John Fuller, great grandson of the founder of W. P. Fuller & Co., will supervise the development and construction of the Hawaiian Island branch of the company, which is in process of erection.

It will be the first branch of the company established outside the continental limits of this country, although the company's products have been distributed and sold both in Hawaii and the Philippines for half a century. The new branch will comprise an attractive store, offices and warehouse.

Mr. Fuller, was assistant manager of the industrial finishes division, prior to the present appointment. His wife and family will take up residence in Honolulu with him.

#### Bruning Bros., Inc., Announce Purchase of Sun & Sea Co.

Bruning Brothers, Inc., Baltimore Md., announce the purchase of the Sun and Sea Paint Co., Boca Raton, Florida. The plant was founded in 1951 for the manufacture of a complete line of paints and waterproofing and calking compounds, and has been serving the export trade in the Caribbean, as well as domestic industrial, marine and dealer trade.

**LIQUID MATERIALS HANDLING**

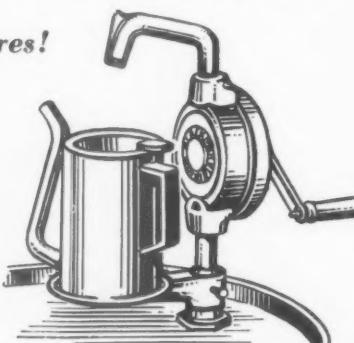
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"Putting the finger on" a paint's ability to be self-cleaning, yet preserve film integrity. National Lead's Sayville Test Station, Sayville, L.I.

## At your finger-tips...proof

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Basic Silicate  
White Lead

"45X"

has what it takes to make foolproof exterior paints

"Lead" is a wonder worker.

And the type of "lead" that works wonders in exterior paints most economically is "Dutch Boy" Basic Silicate White Lead "45X."

The experience of many leading paint makers proves this. So do tests at National Lead's Sayville Exposure Station, where many different pigments have been exposed for years.

One of these tests "puts the finger on" a paint's ability to be self-cleaning, yet preserve film integrity. It is placed right at your finger-tips proof that "Dutch Boy" Basic Silicate White Lead "45X" gives you the

precise control or balance needed in white House Paints.

"45X" does more than that for exterior paints — much more, other Sayville tests show.

In Tinted House Paints, it increases film durability and resistance to color changes.

In Primers, "45X" contributes greater adhesion, plus the water resistance to maintain the paint film's adhesive bond.

In Porch and Floor Enamels, it plasticizes the film, increases abra-

sion resistance, improves adhesion.

In addition to its adaptability, "45X" is "lead" in its most economical form. You actually use fewer pounds than with other white lead types. That's because the reactive portion of each "45X" pigment particle is concentrated at the surface and, thus, proportionately larger amounts of "lead" are made available.

Cut complaints on your exterior paints. Use economical "Dutch Boy" Basic Silicate White Lead "45X."

National Lead Company: New York 6; Atlanta; Buffalo 3; Chicago 80; Cincinnati 3; Cleveland 13; Dallas 2; Philadelphia 25; Pittsburgh 12; St. Louis 1; San Francisco 10; Boston 6 (National Lead Co. of Mass.). In Canada: Canadian Titanium Pigments Ltd., 630 Dorchester Street, W., Montreal.

\*Reg. U. S. Pat. Off.



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LOSS OF DRY in certain paints as they age on dealers' shelves is a serious problem. Disappointed customers usually switch to other brands. You can't re-work bad batches when they're in small cans in hundreds of retail outlets.

You can insure your paints against loss of dry with Nuact Paste, the patented lead base product which has been used by more than 400 manufacturers to successfully treat over 50 million gallons of paint.

Developed specifically to stabilize drying power without side effects, Nuact Paste is effective in a wide range of formulations.

Laboratory and field results show that Nuact Paste economically maintains drier stability in systems where the pigments are susceptible to drier adsorption. These include Carbon Blacks, Chrome Greens, Iron Blues, Red Toners, Browns, and Titanium Dioxide.

If you'd like to learn more about this unique product and want a sample for your own evaluation, please use the coupon.

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I'm interested in Nuact Paste as insurance against loss of dry in my paints. Please send:

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- Folder "The Answer to Your Questions on Loss of Dry"
- Technical Brochure — Nuact Paste

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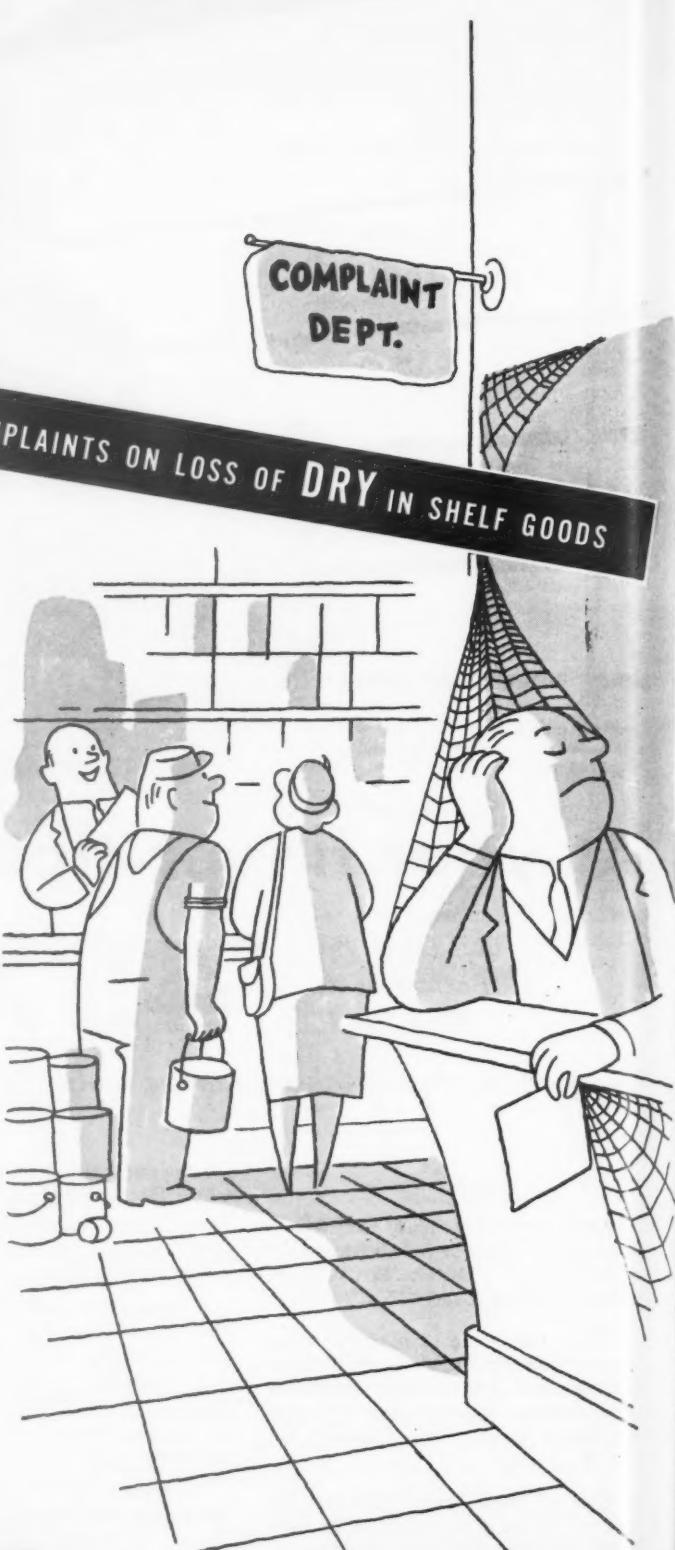
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**NUODEX**

**NUODEX PRODUCTS CO., INC., Elizabeth, N. J.**

Plants in  
Elizabeth, N. J., Newark, N. J., Long Beach, Calif.  
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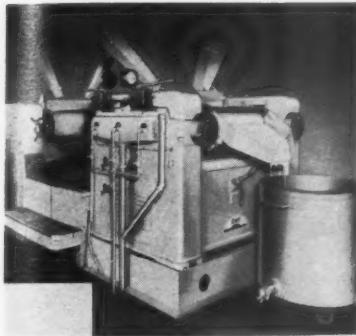




# NEW MATERIALS & EQUIPMENT

## A MONTHLY MARKET SURVEY

This section is intended to keep our readers informed of new materials and equipment. While every effort is made to include only reputable products, their presence here does not constitute an official endorsement.



J. H. DAY

### SETTING DEVICE

#### Improves Roller Mill Work

"Hydra-Set" is a hydraulic roller setting device which guarantees consistent mill production even when operated by an unskilled worker, according to the manufacturer. It is said that faster, more uniform production results from the complete elimination of guesswork and frequent readjustment of roll positions.

The manufacturer claims that problems associated with regular hydraulic systems are caused by leakage around the adjusting piston. This leakage necessitates frequent pressure readjustments to maintain the correct roll setting.

The "Hydra-Set" precludes this leakage by sealing the pressure chamber with a synthetic rubber diaphragm. Force is transmitted through the diaphragm to the piston, which in turn controls the roll position, and since there can be no leakage past the diaphragm, pressure is maintained, the roll position remains constant and no readjusting is necessary. For complete information on this setting device, write for Specification Sheet I-900 RM, The J. H. Day Co., Inc., Dept. 5, 1151 Harrison Ave., Cincinnati 22, Ohio.

### FLATTING AGENT

#### Particle Size, 3-5 Microns

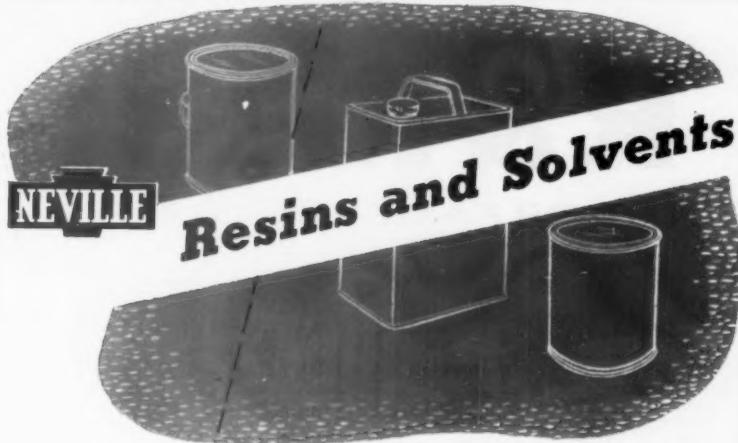
Syloid 72, a silica pigment, is recommended as a flattening and bodying agent.

The transparency of this silica pigment permits its use as a flattening agent in clear finishes without destroying the clarity of the finished film, according to the producer. This pigment is also sug-

gested as a high efficiency dulling agent for pigmented and artificial leather top coatings.

Where a thickening effect or thixotropic mixture is required, this material is helpful. Quantities as low as 3 to 5 percent are said to be sufficient for imparting thickening or bodying characteristics to resin vehicle mixtures.

Davison Chemical Co., Div. W. R. Grace & Co., Baltimore 3, Md.



Coumarone & Petroleum Resins

Oxidizing Petroleum Resins

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Shingle Stain Oils

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Neville has kept pace with the industry's progress by continually developing and improving processes and products. The result . . . you can always depend upon Neville Resins and Solvents in making modern, quality paints and varnishes to meet today's ever increasing commercial and industrial demands!

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Plants at Neville Island, Pa., and Anaheim, Calif.

NEW  
MATERIALS — EQUIPMENT

### COLOR TUBE SYSTEM

#### Wide Compatibility

Color tube system is compatible with oil, alkyd or water emulsion systems, according to the manufacturer. The system provides 324 colors. To secure any of the 324 colors, which range from light tints to deep tones, a dealer need only stock two bases in each type of finish, plus a selection of 12 colorants in 8 different size tubes. The manufacturer point out that his selection will enable dealers to sell the 324 colors in any size can "from

pints up" for either interior or exterior finishes.

Other advantages claimed by the system are: Only one set of color tubes needed for all type of finishes, interior, exterior, solvent reduced, or water emulsion types; reduction of paint stock investment, faster paint stock turnover, and minimum color obsolescence. Archer-Daniels-Midland, P. O. Box 839, Minneapolis 2, Minn.

### SILICONE RESIN For Aluminum Paints

Silicone resin, SR-111, is said to have the following properties: outstanding weather and heat resistance (400-1000 deg. F), excellent

balance of cure speed, flexibility and hardness, high initial gloss and good gloss retention, low weight loss on heat aging, good compatibility with organic and other silicone resins. According to the manufacturer, this resin is especially adaptable in formulating aluminum paints. For samples and technical information, write to General Electric Co., Chemical Materials Dept., Bldg. 77, Schenectady, N.Y.



DRUM EQUIPMENT

### DRUM FILLER

#### Semi-Automatic

"Diafram Filler" is designed for semi-automatic filling of 30 and 55-gallon drums. It is described by the manufacturer as a trouble-free machine for use with free flowing liquids.

According to the manufacturer, one operator can fill 55 gallon drums to the rate of 60 per hour depending on the nature of the liquid. A double diaphragm is said to assure filling to an accuracy of within 1/1000 in 30 or 55 gallons.

This unit is available with two types of controls—hand operated or air operated. For complete details, write to Drum Equipment Corp., 947 Lehigh Ave., Union, N. J.

### ANILINE COMPOUNDS

#### Improved Properties

N-butyl aniline and N-2-ethylhexyl aniline is available in drum quantities. Compared with aniline and the lower N-alkyl anilines these compounds have several advantages such as lower water solubilities, higher boiling points, lower vapor pressures, lower toxicities, and higher solubilities in oil or

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R & R 551 solves the problem of pigment dispersion in Latex and Emulsion paints. A surface acting agent with a triple effect—R & R 551 promotes rapid dispersion, improves freeze-thaw stability and permits a wider choice of pigments.



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If you are not now prepared to make the capital investment for new equipment, the next best thing is a thorough factory reconditioning of the mills you now have. Lehmann's recently expanded facilities for this work insure reduction of 50% in out-of-service time for your mills.

Many paint manufacturers will soon be faced with the problem of boosting production to meet customer requirements, without increasing plant size. To some this may seem an impossible achievement—but is not. New machinery is available that can increase output per unit of space enormously.

The Lehmann Model 631-V Sight-O-Matic\*

Three Roll Paint Mill is such a machine. It gives a quality grind at an extremely high rate of production straight across the board—no matter what the formula. Users are amazed to find that each new Model 631-V Mill will accomplish as much as several of their older types.

As a companion unit to this mill we offer the Model 450 M Heavy Duty Twin Paste Mixer.

**Send for complete information and prices.**

\*Reg. U. S. Pat. Off.



## J. M. LEHMANN COMPANY, Inc.

MAIN OFFICE AND FACTORY: 558 NEW YORK AVE., LYNDHURST, N. J.

**NEW  
MATERIALS — EQUIPMENT**

hydrocarbons, according to the manufacturer.

Uses include production of dyes and pigments, gum and corrosion inhibitors, varnishes, coatings, etc.

Carbide and Carbon Chemicals Co., 30 E. 42nd St., New York 17, N. Y.

**TERPENE CHEMICAL**

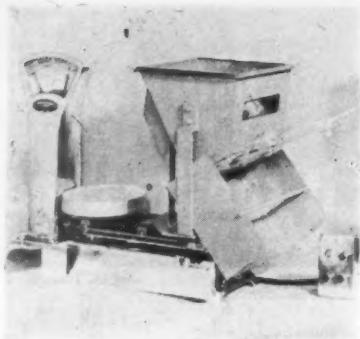
**Has 3 Conjugated Double Bonds**

Allo-Ocimene-85, a terpene chemical, is said to polymerize readily, and since it contains three conjugated double bonds should

suggest to chemists a wide variety of interesting applications as a chemical intermediate or as a modifying agent in unsaturated systems. It has a refractive index of 1.532 at 25 deg. C., a specific gravity of 0.832 at 15.5 degrees C., and a distillation spread at 6 degrees C. of from five to 80 percent.

Available in drum and tank car quantities, this material runs about 80 percent Allo-Ocimene. The balance is composed of the chemical's isomers and small amounts of miscellaneous monocyclic terpenes.

For technical data and samples, write to Glidden Co., Naval Stores Division, Post Office Box 389, Jacksonville 1, Florida.



**EXACT WEIGHT**

**WEIGHING MACHINE**

**Automatic**

Automatic weighing machine with load discharge timer and counter is recommended for all types of free-flowing materials. The weigher is fed the free-flowing material by a vibratory feeder until the predetermined amount is in the weigh bucket. Bucket will not discharge its contents until a pre-set time interval has elapsed, according to the manufacturer. Counter unit records the number of weightments, and shuts off the operation when a pre-set number of loads have been made. A push-button control panel also permits manual control when desired. The manufacturer claims that rheostats provide infinite adjustment of both fast and slow rate of feed to weigh bucket, allowing greatest possible accuracy. Exact Weight Scale Co., Columbus, Ohio.

**LEVEL INDICATOR**

**For Hazardous Areas**

Electronic level indicator in specially-designed explosion-proof cases are now available for installations in hazardous areas, according to the manufacturer.

Known as "Telstors", these explosion-proof units are said to meet the requirements of the National Electrical Code, Article 500.

These indicators are available in several combinations suitable for many different industrial and laboratory applications. They employ the standard continuous level indicator, which is a dependable one-tube, electronic unit for measuring mass or level of liquids, viscous fluids, powders and granular solids, regardless of whether they are conducting or non-conducting.

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- USE TO MODIFY FLATS, UNDER-COATERS, SEMI-GLOSS AND GLOSS ENAMELS
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Baker Industrial Oils Co.
- 17 PITTSBURGH, PENNSYLVANIA  
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- 19 SEATTLE, WASHINGTON  
W. Ronald Benson, Inc.
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### INDUSTRIAL OILS:

Linseed, Tung, Safflower, Soya, Oiticica, Castor, Sardine. Also Coconut oil, Tallow, Cottonseed oil, Lard, Walnut oil and others.

NEW  
MATERIALS — EQUIPMENT

Further information on this unit may be obtained from Fielden Instrument Division, Robertshaw-Fulton Controls Company, 2920 North Fourth Street, Philadelphia 33, Pa.

MOTOR DRIVES

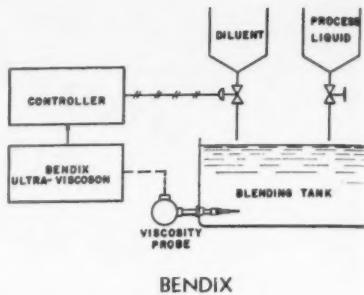
Air and Electric Types

Air motor and electric motor drives for use with "Low-Boy" synthetic resin kettle are now available. Choice of drives is governed by production requirements.

In the air motor the peripheral agitator blade velocities can be

regulated between 0 and 750 ft. per sec. Valve throttle device sets and maintains any speed within this wide range. Standard speed requirements are met with the explosion-proof electric motor, which drives a turbine agitator.

According to the manufacturer, the "Low-Boy" has special oil seals and bearing construction to prevent product contamination from oil and grease. Inert gas is injected into the batch through the shaft and blankets the top by means of a valve. It has adjustable foam breaker, thermometer holder, reflux condenser and charger hole. Available in capacities up to 750 gallons. Brighton Copper Works, Inc., Dept. 8, 820 State Ave., Cincinnati 4, Ohio.



BENDIX

VISCOMETER

Continuous Measurement

Viscosity measuring instrument, utilizing ultrasonic principles, is offered in a complete line of indicating, recording and control systems which is said to be a new approach to process control through viscosity. This unit can be used to measure viscosities of the following materials: (1) Newtonian liquids, (2) Non-Newtonian liquids, and (3) High-Polymers such as polystyrene, phenol-formaldehyde resins, urea, alkyls, polyesters, etc.

Bendix Aviation Corp., Cincinnati Div., 203 W. Third St., Cincinnati, Ohio.

**SYLOID® 162**

*Davison's NEW Alkyd-Urea Flatting Agent,  
for Synthetic Finishes, gives you*

**MORE FLATTING POWER AT LOWER COST**

Laboratory tests and actual use tests have proven that **SYLOID 162**:

- can be ground in one-quarter the time required by other varnish flatting agents.
- the flatting power is two to three times greater than existing materials.
- twice as much can be ground in a single mill charge.
- the high and low tones are not destroyed as with present varnish flatting agents.
- films are tough, durable and mar resistant.
- has an exceptionally high chemical purity.
- chemical properties are controlled to insure uniform performance.
- there is no "seeding".

For further information on SYLOID 162—the alkyd-urea varnish flatting agent that gives you better performance at lower cost—write

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Closed cup flash tester embodies heat control, die cast aluminum base, aluminum hot plate, stainless steel test burner tip, nickel plated finish. Tester body can be removed from base without any tools for rapid cooling. For complete details on this flash tester, write to Labline, Inc., 217-221 N. Desplaines St., Chicago 6, Ill.

For high quality  
**ALUMINUM PAINTS**  
and economy in raw material costs...formulate with  
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AVAILABLE IN EITHER SOLID OR RESIN SOLUTION FORM

- Promote high lustre and good leafing.
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### New Cuban Paint Firm to Manufacture Glidden Products

Formation of a new company, Fabrica Nacional de Pinturas, S. A., to manufacture and market all Glidden Company paint products in Cuba was announced recently by Dwight P. Joyce, Glidden president.

Several outstanding Cuban paint specialists, experienced in all phases of paint production, research and merchandising, will manage the company. Adequate financial backing was provided wholly by Cuban nationals.



Luis R. Feliu

President of the new firm, Luis Rodriguez Feliu, said distribution of

Glidden products in Cuba by his firm will start immediately.

Ground already has been broken for a new factory and office building into which the company will move by next January. Mr. Rodriguez said the most modern paint warehousing and manufacturing techniques available would be incorporated in the new structure, on Carretera de Vento, Havana.

"Mutual benefits of the close association between the two companies will be boundless," Mr. Joyce pointed out. "Fabrica Nacional's specialized knowledge of the Cuban paint market coupled with Glidden's experience as one of the foremost paint producers will aid each company technically and financially."

"Fabrica Nacional will receive all technical and research reports as well as formulas, plus any manufacturing, merchandising or advertising aid we can offer. In turn, we receive rights to all new developments evolved by Fabrica Nacional."

Mutual exchange of information was begun recently when Fausto G. Hidalgo, plant superintendent and technical director for the Cuban company, came to Glidden headquarters in Cleveland for a prolonged meeting with Glidden technicians.

Mr. Hidalgo, who gained his chemical engineer's degree at Rensselaer Polytechnic Institute and his master's degree at Massachusetts Institute of Technology, will take back to Cuba much of the technical knowledge developed during Glidden's years as one of America's leading paint producers.

Another Rensselaer graduate, Diego Perez-Stable, will head maintenance sales for Fabrica Nacional de Pinturas. Oscar Rodriguez Feliu will be in charge of trade sales.

### UCC Torrance, Calif. Plant to be In Full Operation by End of 1955

"Construction of the Torrance, California plant of Carbide and Carbon Chemicals Company is proceeding as planned and good progress has been made," according to Mr. H. B. McClure, company president. At present, construction has been completed on all service buildings. All major equipment has been purchased and contracts for construction of foundations, underground piping, and process buildings have been awarded to a group of contractors working in a joint venture. These are J. H. Pomeroy Company, Ford J. Twain Company, and Walsh Construction Company. It is expected that the plant will be in full operation by the end of 1955.

The Torrance plant of Carbide and Carbon Chemicals Company will be the first on the West Coast to manufacture polyethylene and ethylene glycol.

CLARITY and  
PRODUCTION  
both are kept high with  
**DICALITE**  
**FILTERAIDS**

CLARITY PRODUCTION

DICALITE FILTERAIDS

Paint industry liquids are not easy to filter, because most of the impurities are gummy and viscous. But Dicalite takes the job in stride, keeping production up and delivering brilliant clarity in varnishes, dopes, lacquers and shellac, because Dicalite provides a full range of filter aids to meet practically every requirement of the paint industry.

Dicalite engineers have worked out the problems with many paint and varnish manufacturers who can testify to the efficiency of Dicalite filter aids in the production of linseed oils; cobalt, manganese and lead tallate driers, and paints, as well as the products mentioned before. Their recommendations, together with other valuable data on filtration, is available on request.

DICALITE DIVISION  
GREAT LAKES CARBON CORP.  
612 SO. FLOWER STREET  
LOS ANGELES 17, CALIF.

*Dependable*  
GREAT LAKES  
**Dicalite®**  
DIATOMACEOUS MATERIALS

**Quality Lacquers reflect care in Solvent selection...**

# *Celanese*<sup>\*</sup> SOLVENTS

acetone  
n-butyl acetate  
n-butyl alcohol  
isobutanol  
methanol  
n-propyl acetate  
n-propanol

and Special low-cost Solvents

Celanese Solvents are today contributing to improved lacquer formulations, smoother production schedules, and lower costs. Formulators are taking advantage of the solvent purity and price stability of Celanese synthetic production . . . the uniformity of continuous petrochemical operation based on integrated raw materials . . . the dependability of a nationwide distribution system that includes bulk storage depots conveniently located in key areas, and a standby fleet of tankcars and tanktrucks . . . the extra economy of combination shipments of Celanese Solvents in compartmented tankcars, tankwagons or mixed drum carloads.

The Lacquer Group in Celanese Technical Service and Application Laboratories is ready to work with you.

Celanese Corporation of America,  
Chemical Division, Dept. 558-I  
180 Madison Avenue, New York 16



## Personnel

## Changes

### ATHEY

**Tommy B. Russell** has been made factory superintendent. He has been associated with the firm for the past eight years, and was formerly production superintendent.

### CELANESE

**W. D. Morrison** has been named assistant to the Director of the Development Department. For the past two years he was assistant manager of the Product Development Department of the chemical division.

### CABOT

**Harry J. Collyer** has been appointed technical representative for continental

Europe and the British Isles, with headquarters at Cabot, Ltd., Stanlow, England. He was previously connected with the research and development staff of Colgate-Palmolive Co., and as research assistant in the division of Industrial Co-Operation, Massachusetts Institute of Technology, Cambridge, Mass. He joined the Cabot organization in 1946, and was technical manager of the British subsidiary, returning to Boston in 1952.



H. J.  
Collyer



R. L. Hallam



F. C. Herot



W. A. Hubbard



G. Metzinger



D. M. Neely

### SHELL CHEMICAL

**R. L. Hallam, F. C. Herot, W. A. Hubbard, G. F. Metzinger and D. M. Neely** have been appointed to the newly formed specialized resins sales group. Hallam was technical salesman in Detroit; Herot was the same in Cleveland; Hubbard served in Newark, N. J.; Metzinger also served in Newark and Neely was senior technical salesman in New York.

### GLIDDEN

**Raymond P. Devoluy** has been appointed manager of the national marine department. He is a well known corrosion engineer and coatings expert, and will supervise the organization of marine products, distribution, sales representation and expansion of marine paint sales.

### MMM

**Robert M. Adams** has been appointed eastern sales representative of fluorochemicals, and will cover New York and New England territories with headquarters at Ridgefield, N. J.

### SHERWIN-WILLIAMS

**H. W. Smock** has been appointed superintendent of the Chicago lacquer department, succeeding Fred H. Lang who has retired.

## Which of these **CARBON BLACKS** meet your tinting and coloring needs?

### FURNACE

#### \*Witcoblak F-1

Most economical. Largest particle size, lowest oil absorption, bluest undertone. Easy dispersion.

#### \*Witcoblak F-2

Slightly darker color than F-1.

#### \*Witcoblak F-3

Jetter massstone. High tinting strength, good blue tone.

### CHANNEL

#### Witcoblak No. 11

Very dense semi-pelletized channel black. Less dusting.

#### \*Witcoblak No. 32

Maximum jetness available at low cost.

#### \*Witcoblak No. 50

Standard low-cost black. Provides ideal combination of color, flow, tinting strength.

#### \*Witcoblak No. 100

Darker grade of channel black than low-price range.

#### Witcoblak Hitone

Next jetter grade for industrial enamels and lacquers.

Manufactured in Witco-Continental plant at Sunray, Texas.

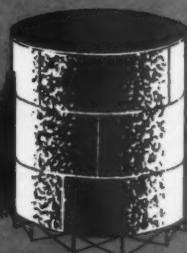
\*Available in pelletized form.

**WITCO CHEMICAL COMPANY**  
**CONTINENTAL CARBON COMPANY**

260 Madison Avenue, New York 16, N.Y.

LOS ANGELES • BOSTON • CHICAGO • HOUSTON • CLEVELAND • AKRON  
SAN FRANCISCO • AMARILLO • LONDON AND MANCHESTER, ENGLAND

## *This is our source*



From the cottonseed, A. Gross & Company produces for you Distilled Cottonseed Fatty Acids used in the manufacture of soaps, polishes, insecticides, lubricating greases, alkyd resins, adhesives, buffering compounds, grease sticks, and for the compounding of rubber.

*... let A. Gross be yours*

If you are looking for HIGH FATTY ACID CONTENT at low price, or a double distilled grade where the essential requirement is light coloration,

A. Gross & Company should be your source of supply for Cottonseed Fatty Acids.

*Send for samples and our catalog  
"Fatty Acids in Modern Industry."*

	GROCO 35 — DOUBLE DISTILLED		GROCO 30 — DISTILLED	
Titre	36° — 39° C.		33° — 36° C.	
Lovibond 514" Red	1.0 —	2.0	5 —	10
Lovibond 514" Yellow	5 —	15	30 —	50
Color Gardner 1933	1 —	3		
Unsaponifiable	1.5% max.		2.0% max.	
Saponification Value	201 —	206	200 —	204
Acid Value	200 —	205	199 —	203
Iodine Value (WIJS)	90 —	100	95 —	110

## **A. GROSS & COMPANY**

295 Madison Ave., New York 17, N. Y. Factory, Newark, N. J.

Distributors in Principal Cities      Manufacturers Since 1837

## VALSPAR

**W. V. Keegan** has joined the organization as general manager of all technical, manufacturing and purchasing activities.



**W. V.  
Keegan**

He was formerly vice-president in charge of production of A. C. Horn Co. plants manufacturing paint, varnish and enamel. He is a graduate of Fordham and Rutgers Universities, is a chemist, patent attorney and member of the New York State Bar. He had been associated with Sun Chemical since 1941 and became a member of the Horn Division in 1948.

## DEVOE & RAYNOLDS

**J. C. Knochel** has been appointed president of Truscon Laboratories, division of the company, according to an announcement from William C. Dabney, president. He is also a vice-president of the company, and prior to this appointment was serving on Special Assignments from the Louisville, Ky., headquarters.

**J. E. Blue** has been appointed vice-president and director of sales for Truscon. He was formerly district manager of the Michigan branch.



**J. C.  
Knochel**



**J. F. Green**



**C. R. Holman**



**W. E. Ethier**

## PPG

**John F. Green** has been named assistant general manager of the Ditzler Color Division; **Walter E. Ethier** as factory manager of the Atlanta Paint division; and **Charles R. Holman** as assistant division manager of Newark, N. J. paint division.

## RACK ENGINEERING

**John K. Neilson** has been appointed senior field engineer, New England Division.

He has an extensive background in plant operational methods and material handling problems, and was previously chief draftsman, plant layout department, and later material handling technical expert for Pratt & Whitney Aircraft. He lives in Manchester, Connecticut, and is a member of the Manchester Junior Chamber of Commerce, the Purchasing Agents Association of Hartford County, and Connecticut Valley Material Handling Society.



**J. K.  
Neilson**

## MAUTZ

**Donald E. Dick** has been appointed assistant to chief chemist Douglas Dill, according to an announcement from Henry Behnke, general manager. He was most recently chemist and technical director of Stebbins & Roberts, Inc., Little Rock, Ark.

## ADM

**Lucian C. Sprague** has been appointed consulting engineer. He was formerly chairman of the board and president of the Minneapolis & St. Louis Railway Co. He will specialize in transportation problems.

# Chats about Finishes

## PROTECTIVE COATINGS LAB BUSY BUT READY TO HELP

by

**RUFUS F. WINT**

*Coordinator—Coatings Laboratory  
Hercules Cellulose Products Dept.*



The Hercules Cellulose Products Coatings Laboratory was organized to provide more and speedier technical service to the protective coatings industry. It has been swamped with work since its inception. All new work must be carefully screened to insure: (1) the selection of the most important jobs, and (2) fast service on these jobs.

An example of work done in this laboratory was *Staining of Lacquer Films by Rubbing Oils* (Request S-54-14). A furniture lacquer manufacturer submitted eight of his customers' rubbing oils to determine whether these oils used for rubbing and polishing furniture tended to stain lacquer finishes.

This job was readily approved. Why? Because it was thought the solution of this problem would help our customer and would help the lacquer industry by upgrading lacquer furniture finishes.

The results of the laboratory work undertaken showed that four of the oils, those not being highly refined, did have a tendency to stain furniture lacquers, while four more highly refined oils tested in an identical manner, did not stain.

The Coatings Laboratory, its staff and facilities, are eager to serve the protective coatings industry. Don't hesitate to discuss your problems with us.

*Rufus F. Wint*

Cellulose Products Department  
**HERCULES POWDER COMPANY**  
INCORPORATED  
926 Market St., Wilmington 99, Del.

IC54-6

# Sodium Periodate Method Recommended For Glycerol Analysis

Only the sodium periodate method of glycerol analysis has been retained as an official method by the *American Oil Chemists Society*, which recently removed the long-standing acetin and the dichromate procedures for glycerol determination from its list of Official Methods.

The principal reason for this step by the A.O.C.S. was that the existence of three official procedures was confusing. The society's action is expected to speed adoption, for trading purposes, of the one method that its Glycerine Analysis Committee believes to be superior. This procedure—the sodium periodate method—is the most specific and suitable for the determination of glycerol in undistilled crude glycerines—a vital part of commercial transactions.

Changes that this action will bring about in glycerine buying and selling are bound to be gradual. Common practice today is for the acetin method to be specified in glycerine purchase contracts. This goes back to 1911 when a committee of representatives from the United States, England and several other European countries adopted the acetin method as a standard.

With the leading technical body in the oil field putting its stamp of approval on another analytical procedure, an increasing number of contracts will call for determination of glycerol content by the more accurate periodate method. Eventually it is expected that the periodate method will be a standard specification in most contracts written not only in the United States but throughout the world.

## No Sudden Decision

Behind this decision by the American Oil Chemists Society are many years of thorough investigation by its Glycerine Analysis Committee, which unanimously recommended the action taken by the Society's Uniform Methods Committee, including a few minor changes in the existing sodium periodate procedure. Laboratories in France, Germany, Holland, Sweden and the

United Kingdom as well as this country have participated in collaborative analyses which advanced knowledge of the sodium periodate method and clearly indicated its superiority. And while foreign technical groups and laboratories have not yet taken any action similar to that of the A.O.C.S., this international participation is expected to mean early universal acceptance of the new standard.

Specific advantages of the sodium periodate method over the acetin method, according to *W. D. Pohle, Research Laboratories, Swift & Co.*, who is chairman of the Glycerine Analysis Committee, are:

1. It is applicable to samples containing 0.1% to 100% glycerol, whereas the acetin method is not applicable if the sample contains less than 60% glycerol.

2. Trimethylene glycol and propylene glycol are not analyzed as glycerol, whereas they are in the acetin method.

3. Glycols and polyglycols found in glycerol foots do not interfere with the analysis, whereas the acetin method requires a correction for these materials in the nonvolatile residue.

4. It is simpler, more rapid and more accurate than the acetin method (which tends to give low results, although this can be compensated for by the use of a pure glycerol as a primary standard). Analyses by the new method can be completed in about 1/5 the time, and can save about 80% of the time an analyst would spend making a determination by the acetin procedure.

## Period of Transition

Generally the periodate method will give the higher glycerol percentage, except in cases of crudes high in trimethylene glycol, where the acetin method will give a higher result. Since a difference of 1% on a 20,000 lb. lot, for example, might make a difference of \$40 (assuming crude at 20c lb.) in the selling price of the lot, there will be considerable give-and-take in trading for some time to come.

But while for a time there may be

discussion among glycerine traders over apparent differences in price, gradually the new basis will become standard, and will cease to be a talking point in glycerol purchases. For basically all businessmen want the most accurate standard.

A description of the new method, A.O.C.S. Official Method Ea 6-51, Glycerol, Sodium Periodate Oxidation Method, can be obtained from the Glycerine Producers' Association, 295 Madison Avenue, New York 17, New York.

## American Cyanamid To Provide Scholarships in Chemistry

American Cyanamid Company has established an undergraduate scholarship program in chemistry and chemical engineering, according to an announcement of the company. Under the new program 17 undergraduates about to enter their junior or senior year will be awarded \$600 each for the academic year 1954-55. In addition, each college at which scholarships are awarded will receive \$300 for the unrestricted use of its chemistry or chemical engineering department.

The undergraduate scholarships are designed, according to the company, to supplement its existing program of post graduate fellowships and grants involving some 16 universities and institutes, as well as faculty members of schools engaged in advanced medical research, and assistance to certain agricultural research projects.

## Aerosol Paint Production Up in 1953, CSMA Reports

Production of aerosol pigmented and metallic paints increased to 8 1/4 million units in 1953, according to a report of the Chemical Specialties Manufacturers' Association, which held its 40th mid-year meeting in Cincinnati May 24 and 25. Production of the self-pressurized container units in the paint field was just under 4 1/2 million units in 1952, the report said.

Leaders in the aerosol industry are said to be predicting a peak sales year in 1954—\$180 to \$200 million compared to last year's \$150 million business—for two reasons:

The market for aerosol products is believed to be far from saturated;

Constant laboratory research is expected to bring new developments and, consequently, expanded markets.

Although showing an increase last year of some 84 per cent over the previous year, production of aerosol paints is a good deal behind other categories, such as shave creams, on which sales volume doubled, and hair lacquers, on which business tripled during 1953.

# TALL OIL



# NEWS

Union Bag & Paper Corporation • Chemical Sales • 233 Broadway, New York 7, N. Y.

## TALL OIL—D. C. O. BLENDS PRODUCE QUALITY VEHICLES

"Tall Oil—Dehydrated Castor Oil Blends," a paper describing the extensive research completed by Baker Castor Oil Company, indicates that inexpensive quality vehicles are produced by combinations of tall oil and dehydrated castor oil.

The typical refined tall oil described in this paper was Unitol S. It exhibited advantages in this type of coating and was subsequently used as the standard in this research.

With the announcement by Union Bag & Paper Corp. of its new lightest refined tall oil, Unitol G-7, further research was indicated to determine the value to the paint industry of this new tall oil with blends of dehydrated castor oil.

The supplemental research was reported by Temple C. Patton and William Lindlaw of Baker Castor Oil Company.

### Formulations, Vehicle Characteristics and Cooking Logs Illustrate G-7 Advantages

(Typical T.O.—D.C.O. Uniphase Varnishes and One-Coat Alkyd Flats)

20 gallon Unitol G-7 DCO Uniphase Varnish		Unitol S	Unitol G-7
Tall Oil		63.3	63.3
Castung 403 Z-3		25.6	25.6
Pentaerythritol		8.6	8.6
Maleic Anhydride		2.5	2.5
		100.0	100.0
Holding time @ 550° F. hrs.	4:30	4:20	
Viscosity, 50% in M.S.	H	H	
Acid Value, solids	12.5	10	
Color, Gardner Holdt	9+	6+	
Set-to-touch, min.	41	.35	
Dryhard hrs.	8	3	
After Tack (overnight)	sl	none	

#### COOKING LOGS

Time	Unitol S		Unitol G-7	
	Acid No.	Viscosity	Acid No.	Viscosity
9:30—Start				
10:30—Hold at 450°F.				
11:00—Add PE				
12:00—Hold at 550°F.				
1:00		30	A—	
2:30		15.6	A+	
3:00	16.8	A—	15.0	B
3:30	15.0	A	11.4	C—
4:20	14.0	B	10.4	D—
4:30	13.4	C		
Final	12.5	H+	10.	H+

## UNITOL G-7 Found Superior in Independent Tests

### BAKER RESEARCHERS STUDY G-7



(Above) Temple C. Patton, Baker Castor Oil Co., examines color and viscosity of a Unitol G-7 one-coat flat alkyd. Laboratory reaction kettle from which sample has been drawn is in background. (Below) William Lindlaw, Baker Castor Oil Co., studies draw downs of enamels in Baker's Protective Coating Laboratory.

Flat Alkyd Unitol G-7, DCO vehicle		Unitol S	Unitol G-7
Tall Oil		35.2	35.3
Castung 103 G-H		11.1	11.0
Phthalic Anhydride		34.2	34.7
95% Glycerine		19.5	19.0
		100.0	100.0
Holding time @ 450°F. hrs. min.	5:20	5:20	
Viscosity, 40% solids in M.S.	Z6+	Z6+	
Acid Value, solids	29	19	
Color 40% solids	7+	6	
Set-to-touch min.	19	19	
Dry hard—min.	65	64	
After Tack	Tacky	V sl	
Driers: 0.06 Co; 0.6 PB. on T.S.			

COOKING LOGS					
Time:	Unitol S		Time:	Unitol G-7	
	Acid No.	Viscosity		Acid No.	Viscosity
9:22 Start			9:30		
10:47 Hold			10:47 Hold		
at 450°F.			at 450°F.		
12:00	76	Z6	1:20	35	Z1+
12:42	46	Z4+	2:00	35	Z3—
1:15	43.5	Z4+	2:25	28	Z3—
1:50	34.2	Z4+	2:55	28	Z3—
2:15	32.0	Z5—	3:35	24	Z3—
Final	29.0	Z6	4:05	20	Z5—
				19	Z6+

### Baker Castor Oil Company

#### Sees Six Major Improvements

Comparison of more than 60 cooks at the Protective Coatings Laboratory of the Baker Castor Oil Company have established the superior drying characteristics of Union Bag's new G-7 grade of Unitol Refined Tall Oil, as well as a number of other significant advantages.

The results of the series of independently conducted tests were announced by William Lindlaw, head of the Protective Coating Laboratory, and Temple C. Patton, Chief Sales Service Department, Baker Castor Oil Co.

#### THREE HOUR DRY HARD

Previous research on typical tall oil-D.C.O. blends had shown an eight hour dry hard time. Use of Unitol G-7 produced the exceptional time of three hours. In addition, the new Unitol G-7—D.C.O. blend completely eliminated the slight after tack (green feel) which had been noted on overnight drying in the uniphase varnishes reported.

#### ADVANTAGES HIGHLIGHTED

Baker Castor Oil Co.'s evaluation of Unitol G-7—D.C.O. uniphase varnishes and one-coat alkyd flat formulations confirmed six outstanding G-7 characteristics:

1. Much improved film dry.
2. Much improved vehicle color.
3. Lower acid number (T.S.) at equivalent Visc.
4. Faster esterification rate.
5. Easier handling in the kettle.
6. Improved vehicle odor.

## AMSCO

John E. Capizzano has been appointed eastern sales manager. He has been associated with the company since 1934, starting in the testing laboratory, advancing to laboratory Director, and thence to Operations Manager and Technical Sales representative.

James V. McLaughlin has been named assistant sales manager of the Eastern Division. He has been connected with the company for more than fifteen years, as credit manager and manager of the eastern office. Both will make their headquarters in the New York office.



J. E.  
Capizzano



J. E.  
Blue

G. A.  
Mooney

## TRUSCON

James E. Blue has been appointed vice-president, director of sales, according to an announcement from J. C. Knochel, president. Glen A. Mooney has been appointed sales manager and assistant to Mr. Blue.

## ROBERTSON

A. Todd Selbert has been appointed to the sales organization of the company, according to an announcement from D. M. Koechel, secretary-treasurer. He is a native of Cincinnati, Ohio, and has been connected with sales and management for seventeen years, the last thirteen of which have been in the industrial coatings field with the Interchemical Corp. He attended Purdue University, and served with the 14th Air Force in World War II.



A. T.  
Selbert



E. C. Brown, Jr.



J. F. Carragher



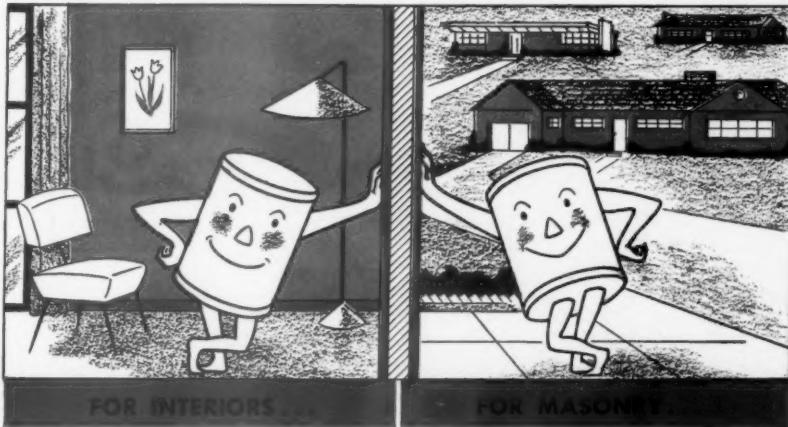
Earl Scott

## GOODYEAR

Edward C. Brown, Jr., James F. Carragher and Earl Scott have been appointed to the sales service section of the Chemical Division. Brown will cover the plastic molding industry, Carragher the vinyl processing industry, and Scott will handle latices principally for the textile and paper industries.

## DIWEY & ALMY

Donald B. McCommand has been appointed assistant to the vice-president—general sales manager. Paul Y. Clinton has been named a member of the administrative sales staff. The announcements were made by George W. Blackwood, vice-president and general sales manager.



**Durable water-base paints made with "ELVACET"\*\***  
(Polyvinyl Acetate Emulsions)

**give you extra selling punch!**



1. Resists yellowing
2. Fast-drying
3. High moisture-vapor transmission
4. Easy to clean
5. Alkali-resistant
6. Resistant to sun, sea air

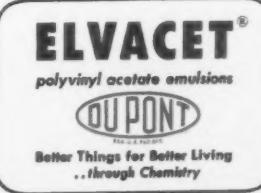
**Du Pont will help you make profitable polyvinyl acetate emulsion paints**

You'll find them easy and economical to formulate—no special equipment is needed. Here's your chance to sell the growing market for these new interior and masonry paints, so act today! Clip and mail the coupon for more information, including suggested formulations. E. I. du Pont de Nemours & Co. (Inc.), Electrochemicals Dept., Wilmington 98, Delaware.

\*REG. U. S. PAT. OFF.

E. I. du Pont de Nemours & Co. (Inc.)  
Electrochemicals Dept., Wilmington 98, Del. PVP94  
 Please send me more information on "Elvacet" for interior and masonry paints.  
 Please have your representative call with suggested formulations.

Name \_\_\_\_\_ Position \_\_\_\_\_  
Firm \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_





### Ind. Finishing Show to Feature 1955 AES Meeting

The 1955 Industrial Finishing Exposition will be held in conjunction with the 42nd Annual Convention of the American Electroplaters' Society in Cleveland Public Auditorium, Cleveland, Ohio, June 20-23, 1955. The Educational Sessions and business meetings of the 42nd AES Convention will be held under one roof in the same building as the Industrial Finishing Exposition. It is anticipated that over 200 exhibitors will utilize a total of 100,000 square feet

in the Arcade and Upper Level of the Auditorium.

The 1955 Industrial Finishing Exposition will be attended by over 12,000 production supervisors, engineers, chemists and other executives from the over 8000 electroplating and industrial finishing plants in the United States. Cleveland Public Auditorium is located in the geographical center of this industry and is overnight from 90 per cent of these plants.

Exhibitors will be those companies who manufacture equipment, supplies and services used in the industrial finishing and electroplating plants. Items to be exhibited will be the latest developments in services and products that enable the industrial finisher and electroplater to make his own manufactured product better with greater sales appeal and durability.

### Glidden to Construct 10 Million Dollar Titanium Dioxide Plant

One of the largest titanium dioxide and sulphuric acid plants in the world will be constructed by the Glidden Company on a 100-acre site in Baltimore, Dwight P. Joyce, president, announced recently.

Plans call for construction to begin immediately on the first unit of the huge plant, which alone will cost \$10,000,000 and cover some 25 acres. Completion of this portion of the plant is scheduled for December of next year.

Ultimately, three units will occupy the 100-acre site.

Titanium dioxide, an extremely durable white pigment, is derived from ilmenite ore. It is used extensively in the manufacture of paints, wall paper, linoleum, plastics, synthetic film, welding electrodes, lithographic metal coatings and many other industrial products.

Because of its use in production of titanium dioxide, sulphuric acid will be manufactured at the new plant. A portion of the first unit will be a sulphuric acid recovery plant.

G. M. Halsey, director of manufacturing for the Glidden Company's Chemicals, Pigments and Metals Division, will be in complete charge of planning and construction of the new facilities.

Design and construction activities will be directed from offices in downtown Baltimore, according to John P. Ruth, Glidden vice president in charge of the Chemicals, Pigments and Metals Division.

"These modern new facilities will greatly increase our present titanium dioxide production and enable us to meet the constantly growing demand for this product," Mr. Ruth said.

Some 15 buildings will comprise the first unit of Glidden's new titanium dioxide and sulphuric acid plant. Included will be offices, laboratories, power plants and production facilities. Construction is to be of brick, reinforced concrete and steel.

### National Aniline Moundsville Maleic Plant now on Stream

The maleic-anhydride-fumaric acid unit in the Moundsville, W. Va. plant of National Aniline division, Allied Chemical & Dye Corporation is now on stream, according to an announcement by Ross M. Sims, plant superintendent. It will produce maleic anhydride tablets and fumaric acid crystals.

The plant is located on a large tract alongside another Allied Chemical facility, and according to the announcement, incorporates the latest advances in engineering construction, equipment and instrumentation.

## Another Record Falls!

**95% TRADE ACCEPTANCE IN 1 YEAR  
ACHIEVED BY THE REMARKABLE PAINT ADDITIVE**

# THIXCIN

**...Baker's® NEW MULTIPLE-PURPOSE,  
NON-YELLOWING PAINT ADDITIVE**

The astonishing success of THIXCIN is due to a unique series of performance characteristics it lends to paints.

1. Eliminates sag
2. Prevents pigment settling
3. Increases brushability
4. Controls penetration
5. Imparts viscosity and thixotropic body

Production men acclaim the marvelous batch-wise uniformity in viscosity. Sales managers like the long-term viscosity stability it gives... no let down in summer, build up in winter... more customer satisfaction.

#### THIXCIN IS UNIVERSALLY USEFUL

in both alkyd and oleoresinous paints.

*Let us tell you about THIXCIN... Samples and literature on applications are available on request.*

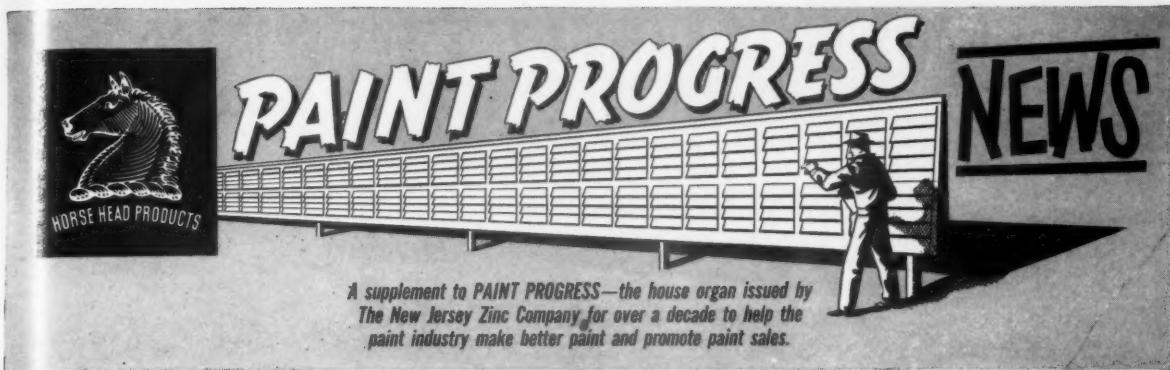
#### THIXCIN'S POPULARITY

has followed closely the increased use of odorless paints.

It's a natural for such finishes. Its fine points show up best here... with the added advantage of being one of few truly effective additives in odorless paint systems.

**THE Baker CASTOR OIL COMPANY**

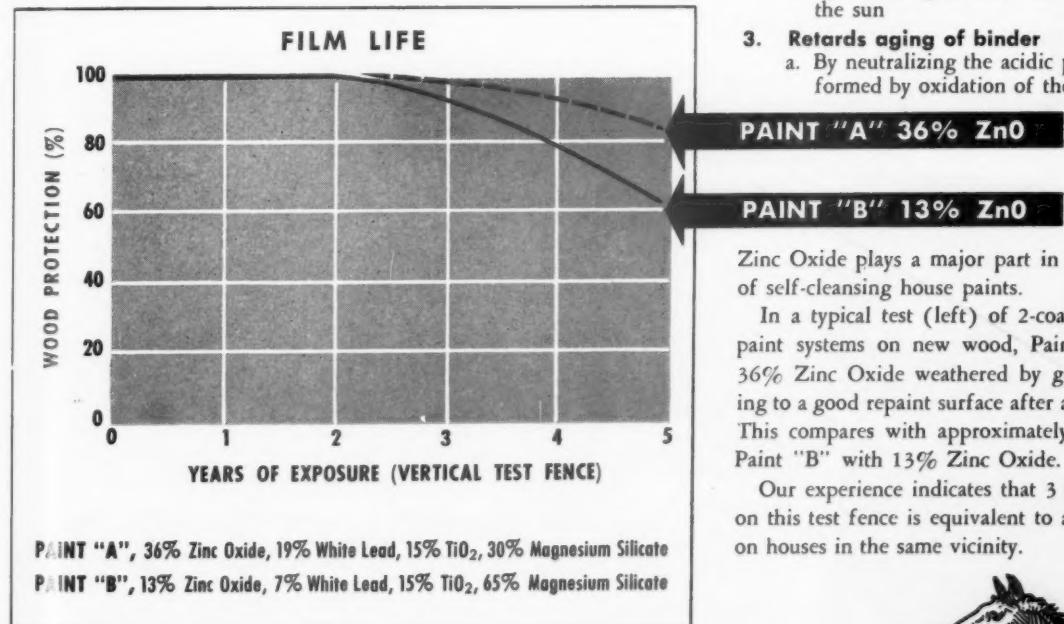
120 BROADWAY, NEW YORK 5, N. Y.  
LOS ANGELES • CHICAGO



## How ZINC OXIDE Adds Extra Life To Modern Outside Paints

Much longer service life is one of the important reasons why leading outside house paints contain about 30% Zinc Oxide by weight of total pigment.

Any significant reduction in Zinc Oxide content shortens the film life, as indicated in the chart below.



Here's how normal Zinc Oxide content prolongs film life:

1. **Toughens the film**
  - a. By formation of zinc soaps
  - b. By mechanical reinforcement through unusual shapes of particles
2. **Protects the binder**
  - a. By absorbing harmful ultraviolet rays of the sun
3. **Retards aging of binder**
  - a. By neutralizing the acidic products formed by oxidation of the binder

### PAINT "B" 13% ZnO

Zinc Oxide plays a major part in the long life of self-cleansing house paints.

In a typical test (left) of 2-coat self-primed paint systems on new wood, Paint "A" with 36% Zinc Oxide weathered by gradual chalking to a good repaint surface after about 4 years. This compares with approximately 3 years for Paint "B" with 13% Zinc Oxide.

Our experience indicates that 3 years' service on this test fence is equivalent to about 5 years on houses in the same vicinity.



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## CALENDAR OF EVENTS



**Sept. 12-17.** ASC meeting, Div of Paint, Plastics, and Printing Ink Chemistry, Hotel Governo Clinton, New York City.

**Sept. 23-24.** 21st Annual Convention of American Tung Oil Assoc. Buena Vista Hotel, Biloxi, Miss.

**Oct. 11-13.** American Oil Chemists' Society Meeting, Hotel Radisson, Minneapolis, Minn.

**Nov. 15-17.** 66th Annual Convention, National Paint, Varnish, and Lacquer Assoc., Palmer House, Chicago.

**Nov. 18-20.** 32nd Annual Meeting of Federation of Paint and Varnish Production Clubs, and 19th Paint Industries' Show, Palmer House, Chicago.

### Production Club Meetings

**Baltimore**, 2nd Friday, Park Plaza Hotel.

**Chicago**, 1st Monday, Furniture Mart.

**C.D.I.C.**, 2nd Monday.

Cincinnati — Oct., Dec., Mar., May, Hotel Alms.

Dayton — Nov., Feb., April, Suttmillers.

Indianapolis — Sept., Claypoll Hotel.

Columbus — Jan., June, Fort Hayes Hotel.

**Cleveland**, 3rd Friday, Harvey Restaurant.

**Dallas**, 2nd Thursday, No Fixed Place.

**Detroit**, 4th Tuesday, Rackham Building.

**Golden Gate**, Last Monday, El Jardin Restaurant, San Francisco.

**Houston**, 2nd Tuesday, Seven Seas Restaurant.

**Kansas City**, 2nd Wednesday, Pickwick Hotel.

**Los Angeles**, 2nd Wednesday, Scully's Cafe.

**Louisville**, 3rd Wednesday, Seelbach Hotel.

**Montreal**, 1st Wednesday, Queen's Hotel.

**New England**, 3rd Thursday, Puritan Hotel, Boston.

**New York**, 1st Thursday, Brass Rail, 100 Park Ave.

**Northwestern**, 1st Friday, St. Paul Town and Country Club.

**Pacific Northwest**, Annual Meetings only.

**Philadelphia**, 3rd Wednesday, Engineer's Club.

**Pittsburgh**, 1st Monday, Fort Pitt Hotel.

**St. Louis**, 3rd Tuesday, Forest Park Hotel.

**Southern**, Annual Meetings Only.

**Toronto**, 3rd Monday, Diana Sweets, Ltd.

**Western New York**, 1st Monday, 40-8 Club, Buffalo.

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# MEDIC



*It's unusual to talk about a television program in this magazine, but we wanted you, our customers and friends, to hear about MEDIC first . . . we honestly believe it to be the most exciting new dramatic production in years . . .*

Startling in its realism and honesty, MEDIC is based on case histories and carries the official endorsement of the Los Angeles Medical Association; produced under their technical supervision by Worthington Miner, originator of *Studio One*; created and written by *Dragnet* writer, James Moser. Don't miss the first performance September 13! The Dow Chemical Company, Midland, Michigan.

See MEDIC Monday Nights 9 to 9:30 EST, NBC-TV



# PATENTS

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## PATENTS AND COPYRIGHTS

424 Bowen Building,  
Washington, D. C.

Complete copies of any patents or trade-mark registration reported below may be obtained by sending 50c for each copy desired to Lancaster, Allwine & Rommel.

### Clear and Pigmented Oil-In-Water Resin Emulsions

U. S. Patent 2,681,322. Laszlo Auer,  
South Orange, N. J.

An oil-in-water resin emulsion textile decorating pigment color composition comprising water, between about 4.5% and about 31% of an emulsified resin-binder, between about 0.18% and 2.16% of an emulsifying agent selected from the class consisting of soaps of fatty acids, fatty acid esters of polyethylene glycols, quaternary ammonium salts, fatty alcohol sulfates, polyethyleneoxide condensation products, polymerized glycol esters and sodium salts of organic sulfonates, between about 0.075% and 4.34% of a protective colloid selected from the class consisting of casein, ammonium caseinate, methylcellulose, sodium carboxymethylcellu-

lose, gum tragacanth, dextrine, starch, sodium acrylate, sodium methacrylate, water-soluble and alkali-soluble hydroxyethylcellulose, locust bean gum, water-soluble salts of the maleic adduct of styrene and alginates, between about 7% and 22% of a dispersed pigment which is a member of the class consisting of phthalocyanine pigments, insoluble azo pigments, vat pigments and carbon blacks, said emulsified resin-binder comprising a polyunsaturated fatty acid ester of a polyhydric alcohol in an emulsion polymerized state, the vehicle solids of the emulsion being sensitive to the action of the air, when exposed to it in a thin layer of a wet film thickness of 0.0015" to 0.003", forming a coherent solid film immediately upon demulsification of the emulsion, said solid film formation being reached within a period ranging from a couple of seconds to one hour, the solid polyhydric alcohol esters forming the dispersed phase of the emulsion having an oxygen content which does not exceed the oxygen content of the unemulsified polyhydric alcohol esters by more than 2.8%, said percents being by weight and being based on the total composition, said pigment color composition being viscous and being suitable as a color concentrate which is dilutable with clear extender print paste emulsions to form the desired strength of shade when used for textile printing, said fatty acid ester being a member of the class consisting of (i) styrenated alkyd resins comprising fatty acids in the acid component, (ii) styrenated fatty oils and (iii) pentaerythritol-glycerine mixed esters of maleic anhydride treated fatty acids, all of said fatty acids containing polyunsaturated fatty acids.

### Stabilized Wax Emulsion

U. S. Patent 2,684,948. Sherwood T. Cross, Christiana Hundred, Del., assignor to Atlas Powder Company, Wilmington, Del., a corporation of Delaware.

An emulsifier composition comprising (a) a mixture of lipophilic partial ester of a long chain fatty acid and a hydrophilic polyhydroxylic organic compound, a highly hydrophilic hydroxy-polyoxethylene ether of a lipophilic partial ester of a long chain fatty acid and a hydrophilic polyhydroxylic organic compound, said hydroxypolyoxyethylene ether containing at least 10 oxyethylene groups; said partial ester and said hydroxypolyoxyethylene ether being present in the mixture in such proportions that the ratio of oxyethylene groups in said hydroxypolyoxyethylene ether to the total ester groups (both in the free ester and in the hydroxypolyoxyethylene ether) is in the range of from about .5 to 9.0 and (b) from about 3% to about 25% by weight, based on the weight of the said mixture, of a hexitol monobor-

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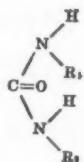
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ate the pH of which has been adjusted to a value between 4.5 to 9.0 by replacement of acid hydrogen of the said mono-borate with a monovalent cation other than hydrogen.

An emulsifiable wax consisting essentially of from 70% to 90% paraffin wax and from 30% to 10% of the emulsifier composition of claim 1.

### Freeze Stabilized Latex Coatings

U. S. Patent 2,683,699. *Havey T. Gehring, Chicago, Ill., assignor to The Sherwin-Williams Company, Cleveland, Ohio, a corporation of Ohio.*



U. S. Patent No. 2,683,699

A method of stabilizing an emulsion copolymer comprising an aromatic vinyl compound containing a single center of unsaturation and a conjugated diolefin having the qualities essential to a paint latex which comprises dispersing therein from 1% to 15% of a water-soluble compound containing a ureylene nucleus wherein R<sub>1</sub> and R<sub>2</sub> are radicals selected from the group consisting of hydrogen, hydroxyl, alkyl and alkyl radicals containing not more than four carbon atoms wherein the sum of the carbon atoms in R<sub>1</sub> plus R<sub>2</sub> does not exceed 5.

### Melamine Resin

U. S. Patent 2,684,964. *Harry L. Heckel, Jr., Prince George County, Va., assignor to Allied Chemical & Dye Corporation, a corporation of New York.*

In a process for the production of melamine by heating urea, exposed to a chrome-nickel stainless steel surface, to elevated temperatures under superatmospheric pressures to decompose the urea with formation of melamine and in addition thereto, ammonia and carbon dioxide as gaseous pyrolysis products of the urea, the improvement which consists in introducing into the reaction zone ammonia from an external source in amounts in the range between about 0.1 and about 1 mol per mol of urea introduced therein, maintaining reaction temperatures at about 300° C., and developing total pressures in the gas phase in contact with said reaction mixture of at least about 300 atmospheres and at most about 350 atmospheres.

### Synthetic Drying Oil

U. S. Patent 2,683,162. *Anthony H. Gleason, Westfield, N. J., assignor to Standard Oil Development Company, a corporation of Delaware.*

A process for improving a polymeric drying oil prepared by copolymerization of 75 to 85 parts of butadiene-1,3 and 25 to 15 parts of styrene in the presence of metallic sodium which comprises mixing said oil with 0.5 to 10% of a reagent selected from the group consisting of acrylic nitriles, alkyl acrylates, vinyl acetate, vinyl ketones, cinnamaldehyde, thioglycolic acid, alkylthioglycolates, and thiosalicylic acid, and heating the mixture at a temperature between 50° and 250° C.

### Synthetic Resin

U. S. Patent 2,683,126. *Joseph Nichols, Bronx, N. Y., assignor to Interchemica Corporation, New York, N. Y., a corporation of Ohio.*

The method of preparing new monomeric, thermosetting products which comprises heating and agitating, in an inert atmosphere and in the presence of a volatile organic liquid which distills over in form of an azeotropic mixture with water, an  $\alpha,\beta$ -unsaturated dicarboxylic acid with about the stoichiometric amount of the cyclic adduct of a conjugated diene and a  $\beta,\gamma$ -unsaturated alcohol, separating the constituents of the distillate from each other, returning the volatile organic liquid to the reaction mixture, and finally removing the agent and any unreacted material.

**PVAc paint sales zoom:** Paint manufacturers confirm sky-rocketing sales of polyvinyl acetate paints . . . insist chemists and sales personnel watch closely all technical and marketing developments. As interest in PVAc rises, unique position of Shawinigan and its GELVA emulsions assumes greater importance with respect to patents, quality, service.

**patent position:** Shawinigan is exclusive paint industry supplier of patented GELVA "free-filming" emulsions. Also holds only U.S. patents covering principles of formulation and use of this type emulsion in commercially practical paints. Purchasers of these patented materials may utilize them under any or all applicable Shawinigan patents without payment of royalty.

**compatibility with reactive pigments:** GELVA emulsions are compatible with calcium pigments normally reactive in PVAc emulsion systems. GELVA formulas thus permit titanium-calcium additions for greater washability, lower costs per unit of hiding. High tolerance for zinc oxide, borated pigments also noted. Compatibility feature is in addition to two other quality advantages previously discussed in this space — built-in water resistance without use of costly solvents and custom plasticizing for formulating versatility at substantial savings.

**knowledge at your service:** Shawinigan offers data on pigmentation, stability, durability of GELVA Emulsion paints based on five years' successful commercial exposure. Also offers samples of GELVA TS-22, suggested interior or exterior formulae, other pertinent literature. Send coupon.

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	Literature
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### Acetone Formaldehyde Resin

U. S. Patent 2,683,133. Mortimer T. Hessey, South Orange, and Peter L. Romamilia, Bloomfield, N. J., assignors to Marvel Research Corporation, a corporation of New Jersey.

The process for producing a resinous reaction product which comprises reacting under aqueous conditions, acetone and formaldehyde with the mole ratio of acetone to formaldehyde being 1 mole of acetone to about 3 to about 5 moles of formaldehyde, said reactants having a strongly alkaline reagent added thereto, said reaction after initiation upon the application of external heat proceeding exothermically due to the addition of a sufficient quantity of said agent thereto, said exothermic reaction reaching temperatures in the range of 160-210° F., the total amount of said agent employed being approximately the alkaline equivalent of sodium hydroxide measuring 1 to 3% of the combined weights of said acetone and formaldehyde when the mole ratio of acetone to formaldehyde is 1 to 3, 1.5 to 4% of the combined weights of acetone and formaldehyde when the mole ratio of acetone to formaldehyde is 1 to 4, and 2 to 6% of the combined weights of acetone and formaldehyde when the mole ratio of acetone to formaldehyde is 1 to 5, the resinous reaction product produced thereby being thermosetting, measuring by weight at least 75% of the combined weights of acetone and formaldehyde and being soluble in twice its volume of water.

### Organic Coating

U. S. Patent 2,683,668. Henry W. Godshalk, Swarthmore, Pa., assignor to E. I. du Pont de Nemours & Company, Wilmington, Del., a corporation of Delaware.

A coating composition comprising an organic film-forming material, which dries to a tough, durable, water-resistant film, and a pigment consisting of colloidal nickelous hydroxide, said nickelous hydroxide having been retained in a gelatinous water-wet state during the entire period between its formation and its incorporation in the said coating composition.

### Freeze-Thaw Latex Paints

U. S. Patent 2,683,700. Harvey T. Gelring, Chicago, Ill., assignor to The Sherwin-Williams Company, Cleveland, Ohio, a corporation of Ohio.

A paint latex comprising an oil-in-water emulsion polymerization product of a major amount of an aromatic mono vinyl compound and a minor amount of a conjugated diolefine containing stabilizing amounts of thiourea.

### Modified Urea Resin

U. S. Patent 2,683,134. John B. Davidson and Edward J. Romatowski, Toledo, Ohio, assignors, by mesne assignments, to Allied Chemical & Dye Corporation, New York, N. Y., a corporation of New York.

A method of producing a thermosetting resin capable of imparting superior wet strength to paper that comprises bringing together a ureaformaldehyde reaction product of less than the desired viscosity, wherein the molar ratio of urea to formaldehyde is from 1:1.9 to 1:3.0, and from 0.01 to 0.2 mol per mol of urea of a water-soluble salt of an ethylenepolyamine having not more than four ethylene groups in aqueous solution at a pH above 4, and then carrying out condensation by maintaining the solution at a pH above 4 and

below 6 and heating at a temperature from 70 degrees C. to the boiling point to effect viscosity increase.

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## Reichhold Announces Construction Of Phthalic Plant Near Montreal

Official confirmation of reports that Reichhold Chemicals, Ltd., Canadian subsidiary of Reichhold Chemicals, Inc., would soon begin construction of a new Canadian phthalic anhydride plant was made recently by Henry H. Reichhold, RCI's Chairman of the Board.

The new plant, to be situated outside of Montreal, will cost \$750,000, Mr. Reichhold said. Phthalic anhydride, which the plant will produce, is an important constituent of fine qualities of certain plastics and enamel finishes. It is used, particularly, in the processing of alkyd resins used in industrial finishes for refrigerators and automobiles. It is a plasticizer material, as well, in making vinyl film and sheeting plastics.

Demand for phthalic has shot up in recent years with the sharply increased demands for the products using the finishes of which it is an ingredient. Currently, Canada consumes about 14,000,000 pounds a year and the new Reichhold plant will produce 4,000,000 pounds annually. Mr. Reichhold reported that the plant's output would be shared between the Canadian domestic market and other Reichhold plants requiring phthalic to make alkyd resins.

## Technical Directors' Meeting Held by Sears Paint Factories

The semi-annual technical directors' meeting of Sears, Roebuck & Company was held at Berkeley, California recently, with W. T. Butner, general manager, and W. F. Rhoades, technical director of the Pacific Paint & Varnish Co., acting as hosts.

G. A. Nichols, technical director of Sears paint and varnish factories, directed the meeting.

## H. Meyer Elected V. Pres. Of Cowles Company, Inc.

At their mid year meeting in Cayuga, N. Y., July 9, the directors of the Cowles Company, Inc., Cayuga, New York, elected Horton Meyer vice president and general manager of the company. Mr. Meyer was formerly sales manager of the firm which manufacturers high speed dissolving and dispersing equipment for the chemical and allied industries. Use of Cowles equipment has cut solution and dispersion times as much as 97 per cent in some applications.

## Mrs. C. J. Overmyer Heads Ladies Comm. for Federation Meeting

Mrs. C. J. Overmyer will serve as honorary chairman of the Ladies' Entertainment Committee for the 3rd Annual Meeting of the Federation of Paint and Varnish Production Clubs to be held at the Palmer House, Chicago, Illinois, on November 18, 19 and 20, 1954.

Mrs. Overmyer, wife of the current President of the Federation, will be assisted by: Mrs. E. J. Murphy, chairman, Mrs. R. A. Adams, vice-chairman, Mrs. N. P. Beckwith, Mrs. M. A. Glaser, Mrs. C. H. Flynn, Mrs. R. G. Gohman, Mrs. T. F. Byron, Mrs. C. M. Scholle, Mrs. L. B. Odell, and Mrs. C. L. Smith.

## PPG Introduces Tube System for Adding Colorants to Paint Bases

A tube system of adding colorants to specially developed neutral and white tinting paint bases, employing a more simplified technique and unlike any method devised to date, was introduced in New York recently by the Pittsburgh Plate Glass Company.

Planned for distribution on a national scale, the system, to be known as "Maestro Colors," introduces a universal colorant that provides instant color dispersion in both latex and alkyd tinting base paint materials.

"A full range of the 300 most demanded decorator colors can be furnished from just one set of colorants consisting of 50 tubes. Only two tinting bases for each line of paints carried will equip a dealer to furnish the entire color range without delay," according to Joseph C. Thompson, Jr., general paint manager of the company.

"The color tubes will be furnished in one-quarter, one, and four-ounce sizes. About half the colors require only one tube and the remainder need but two tubes. Maximum color requirement, for certain deep shades only, is two four-ounce tubes to a gallon of paint. Many of the shades are produced with just a one-ounce tube of color. White tinting bases are used for 185 of the colors and neutral bases for 115," Mr. Thompson related.

## MHI Traveling Clinics To Be Held In Boston and Syracuse in October

The fourth and fifth in the series of traveling clinics on material handling problems scheduled by the Material Handling Institute will be held on October 5th in Boston and on October 6th in Syracuse, at the Hotel Sheraton Plaza and Hotel Syracuse, respectively. Five panels on problems in five principal categories will be presented by chosen specialists.

## ULTRAVIOLET

(From page 28)

to be a reliable screen for various substrates in tests to determine whether ultraviolet radiations are responsible for discoloration. UVHC film filters radiations below 400 millimicrons. A strip of this film is placed over the test material and the specimen exposed to ultraviolet radiations. If no color change occurs on exposure, the absorbers should be useful in protecting the test material from ultraviolet radiations. If the film fails to protect the specimen, factors other than ultraviolet radiations are responsible for degradation and the absorbers alone will provide inadequate protection. This technique provides a simple, rapid test and requires no blending of the absorber with the test material.

Research is now under way to find water soluble and hydrocarbon soluble absorbers to extend the applications for ultraviolet absorbers to a wide range of end products in many industries.

### References

1. "Color Stability in the Finish of Light Furniture," Hercules Powder Company, Wilmington 99, Delaware.
2. C. M. Knowles and S. R. Buc, "A New Class of Ultraviolet Light Absorbers," Proceedings Chemical Specialties Manufacturers Association, Inc., p.156-9, May 1953.

### R. L. Diggs, Oldest Employee of E. W. Colledge, G. S. A., Retires

Retirement of Robert L. Diggs, for nearly 35 years a key figure in the American naval stores industry, was announced by E. W. Colledge, G.S.A., Inc., a wholly-owned subsidiary of The Glidden Company at Jacksonville, Florida.

Mr. Diggs, who is 65, was vice president and sales manager of the Colledge firm, exclusive sales agent for Glidden's naval stores division at Jacksonville, Florida, and for the American Tar and Turpentine Company, New Orleans producer of destructively distilled pine-wood naval stores.

He was the oldest employee and one of the original officers of the Colledge firm, which was founded in 1922. During his career, Mr. Diggs made many important contributions toward developing wider markets throughout the United States and Great Britain for such prime naval stores products as Negro gum turpentine and gum rosin, pine tar, charcoal, pitch, rosin oils, metal resins and terpene chemicals.



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2. It is the best non-settling agent we have checked — at least twice as effective as aluminum stearate, far superior to Troykyd Anti-Settle — a processed bentonite, etc.
3. It prevents not only floating and silking but also flooding — the N. Y. Production Club could not find any additive that prevented flooding. There is no surface action of any kind — therefore no pinholing, frothing, etc.
4. It is an effective anti-sagging agent even for low pigmented alkyds.
5. It improves brushability.
6. It improves color uniformity and porous and non-porous surfaces.

7, 8, 9, 10, etc. — We don't have as yet, but will develop new uses.

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### Dow Plans Biochemical Research Lab at Midland

Construction of new, ultramodern laboratories to house its biochemical research department was begun recently at Midland, Michigan by The Dow Chemical Company.

The new structure, 208 by 190 feet, will provide 40,000 square feet of laboratory space for the department's five sections which include toxicology, industrial hygiene, basic biochemical, microbiology and wood laboratories. Completion is expected within a year.

### Chemical and Pigment Co. Formed in California

Formation of The Chemical and Pigments Company, at Oakland, California, was announced today by Basic Chemicals Company, Sausalito, California.

The Chemical and Pigments Company is comprised of facilities at Oakland, California formerly operated by the Chemicals-Pigments-Metals Division of the Glidden Company. These facilities were purchased from Glidden by the new firm.

The Chemical and Pigments Company has also acquired Glidden's Tonopah, Nevada, barytes mining property. It will also serve as Glidden's sales agent on the West Coast of Zapaque, Cadmolith colors, cuprous oxide, and copper powders.

### Continental Can Announces 1954 Scholarship Awards

Three high school graduates in Pennsylvania, Tennessee and Washington are winners of the 1954 Carle C. Conway scholarships, awarded annually by Continental Can Company to children of company employees.

Four-year, \$1,000 annual scholarships, according to General Lucius D. Clay, chairman of the board, have been won by Barbara M. Rossi, of Pittsburgh, Pa.; Nancy E. Wilson, Memphis, Tenn., and Patricia A. Shaughnessy, of Seattle, Wash.

Winners were selected on the basis of their high school scholastic records and results of college entrance examinations as well as on qualities of character and leadership.

In addition, two special \$500 annual scholarships have been awarded to M. Ruth Shellhorn, of Seattle, and Helen V. Andres, of Campbell, Calif.

Named after the former Continental president and board chairman, the scholarships are given alternately, each year, to daughters and sons of company employees. This marks the fourth year that the awards have been made.

### John A. Peters, VP and Treas. Retires From Glidden Co.

John A. Peters, former vice-president and treasurer of the Glidden Co., has retired, according to an announcement from Dwight P. Joyce, president.

He served the company for more than 33 years, having begun his career as an accountant in 1920. He was appointed treasurer in 1938, elected a director in 1944, and elected vice-president and treasurer in 1951. He resigned his executive positions in 1953, but remained in the capacity of financial advisor and consultant.

### CLASSIFIED ADVERTISEMENTS

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# TECHNICAL Bulletins

## SURVEY OF HOUSE PAINTS

The 1954 AZO Survey is the latest edition of the well known survey of First Grade Outside White House Paints. This survey was first started in 1941 and continued in 1948, 1949, 1950 and 1952. The 33 page 1954 booklet gives a short history of the AZO Survey and the references to previously published articles on it, as well as the formulas in pounds per gallon and in percentages by weight plus certain physical properties of the paints submitted by the 60 paint manufacturers from coast to coast.

The 60 companies submitted more than 156 Outside White, Tint-Base and One-Coat samples of paints with their formulas for tabulation.

The data is tabulated in groups of 15 of any one type of paint with the averages for each ingredient or physical property accumulated from one chart to the next. The averages are, also, compared with those of previous years on other charts so that trends in formulations can be observed.

This latest and largest AZO Survey has again been compiled by the Paint Laboratories of the American Zinc Sales Company, P.O. Box 327, Columbus 16, Ohio. Copies are available on written request.

## FATTY CHEMICALS

40-page technical catalog of fatty chemicals published by Archer-Daniels-Midland Company, Chemical Products Division, 2191 West 110th Street, Cleveland, Ohio, is designed to streamline reference and specifications. It is subdivided into 4 major product classifications, fatty acids, glycerides, sperm oils and fatty alcohols. Each section is then classified into reaction data, specifications, composition and application information. Working charts and test definitions give the catalog continuous desktop utility.

## PLASTICIZERS

A completely revised edition of the booklet titled, "Plastolein Plasticizers" has just been announced by Emery Industries, Inc. In addition to containing complete descriptions and specifications of Emery's line of monomeric and polymeric plasticizers, the 32-page booklet also presents performance data, including an appraisal of such factors as low-temperature flexibility, volatility, water extraction, oil extraction, heat stability and light stability.

These booklets are available on request from: Emery Industries, Inc., Dept. 5, Carew Tower, Cincinnati 2, Ohio.

## GRINDING & MIXING

Four page folder presents the wide range of equipment for grinding and mixing that is available through Paul O. Abbe, 239 Center Ave., Little Falls, N. J.

## PROCESSING EQUIPMENT

The Industrial Filter and Pump Mfg. Co., 5900 Ogden Ave., Chicago 50, Illinois has issued a new 16 page catalog on their equipment for the chemical process industries. This catalog illustrates and describes with use and application data and specifications of their line of pressure filters, ion exchangers, centrifugal pumps, heat exchangers, and rubber lining service.



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## PIGMENTATION OF FLAT PAINTS

(From page 24)

six pounds and four pounds of extender, respectively, neither of which gave the desired consistency. They were then blended to 80 K.U. and the formula of the blend calculated.

A second set of paints was made at the lowest P.V.C. desired, for example 50% P.V.C., and the required formula derived as before. The resulting two paints, one at 50 P.V.C. and one at 70 P.V.C., were then blended in proportions necessary to give the intermediate P.V.C. levels. Such blends, to be accurate, must be made on the basis of the total solids content of the paints. Figure 9 shows the results from a study wherein this system was used.

### Effect of Extenders

The third item for discussion is the effect of extenders on hiding power, brightness and color uniformity. Figure 10 shows the effects of three different calcium carbonates. It is very interesting to note the importance of selecting the proper calcium carbonate or extender pigment.

It should be noted again that diatomaceous silica should be used in an amount of 0.5-1.0 pound per gallon of finished paint. Our tests have shown that when quantities over one pound per gallon are used, the paints tend to have poor brushing and poor wet edge properties.

### Streaking

In our general study of flat paints the problem of streaking was encountered at various times. The laboratory was requested to find possible causes and methods of elimination of streaking. The following information has been obtained from a study of various extenders, vehicles, pigment volume concentrations, pigment ladders and applications over surfaces of widely varying porosity.

1. Choice of vehicle is of primary importance for controlling streaking.

Some vehicles exhibit streaking to some extent under all conditions. Others show little or no streaking.

2. Pigment volume concentration is the second important variable, especially in paints containing troublesome vehicles. Paints with low P.V.C.'s tend to show bad streaking. As P.V.C. is increased, streaking tends to decrease rapidly up to an optimum point, and then increases slowly again. The optimum P.V.C. may be quite critical ( $\pm 1\%$  P.V.C.) and varies for each vehicle.

3. Thickness of applied paint film and consistency have a minor effect on streaking. Thicker films and higher paint consistencies tend to increase streaking.

4. Streaking is dependent on porosity of the surface to be painted and tends to be more pronounced over porous surfaces.

### Odorless Alkyd Vehicles

Another development in flat paint formulation which we wish to discuss briefly is the use of the odorless solvent type alkyd. The use of this new type of vehicle appears to be increasing. Flat paints made with these odorless type vehicles are in direct competition with latex paints. The laboratory has evaluated a few of these systems and intends to enlarge this study as soon as possible.

General indications are that our preferred rutile titanium dioxide/selected calcium carbonate/diatomaceous silica pigmentation maintains its outstanding qualities in the odorless type vehicle. It has also been observed that the extended titanium dioxide pigment/diatomaceous silica pigmentation exhibits slightly improved color uniformity in some of the odorless vehicles over their regular solvent counterparts. This improvement in color uniformity still does not match our rutile titanium dioxide pigmentation for color uniformity.

A problem of incompatibility has arisen with the use of odorless solvents. The Kauri Butanol value of the odorless solvent is low, thereby reducing the tolerance of vehicle resin to solvent. Several of the vehicles tested "kicked out" at approximately normal (16-25% resin by weight) paint formulation concentration. Vehicle manufacturers are aware of this problem and latest indications are that some have taken corrective steps without impairing the quality of their vehicle. Solvent manufacturers are also active in attempting to increase the K.B. value of their odorless solvents.

Another interesting fact is that regular mineral spirits reduces the consistency of odorless paints very rapidly. The average consumer could easily ruin his paint by a normal addition of one of the regular solvents.

In summary, we have presented:

- (1) Pigmentation for flat paints having excellent color uniformity over surfaces of varying porosity.
- (2) A method of recording color uniformity data and a simplified method of studying paint problems.
- (3) Data on the effect of blends of  $TiO_2$  and titanium calcium pigmentation of flat paints.
- (4) A method for studying paints at constant titanium dioxide pigment content and varying P.V.C.
- (5) Results of our study on the effect of extenders on hiding power, brightness and pigment volume concentration of flats.
- (6) The problem of streaking of flat paints.
- (7) A brief review of the use of odorless vehicles and solvents in flat paints.

## COLOR SELECTION

Newest sales tool for the retail paint dealer is a booklet featuring in full color a selection of outstanding kitchen decorative schemes from 10 of the country's most popular and authoritative home decorating magazines.

Titled "A Portfolio of Colorful Kitchens," the 12-page booklet is made available to paint and paint accessory manufacturers for distribution to their dealers.

Available for supplementary store and window display are four-color, poster-size (18" x 22") enlargements of each of the 10 colorful kitchens. Similar posters for an earlier "Colorful Bedrooms" booklet have proved most effective in the stimulation of retail paint sales, according to Archer-Daniels-Midland Co., originator of the Week-End Decorator program.

Colors appearing in the various kitchen decorative schemes are number-keyed to the matching color or intermix in each manufacturer's line. Reference to this key, which appears on the back page of the portfolio, makes cus-

tomer selection from dealer stock quick and sure.

As the second in a planned series of four portfolios, "Colorful Kitchens" is part of a concentrated program to sell color—and of course paint-on a room-by-room basis. Archer-Daniels-Midland Co., Baker Arcade Building, Minneapolis 2, Minn.

## CHEMICAL INTERMEDIATE

"Nadic" Anhydride and its potential use in polyesters, organic coatings, resins, rubber, plasticizers, surfactants, insecticides and similar organic syntheses are covered in Technical Bulletin I-5 recently issued by National Aniline Di-

vision, Allied Chemical & Dye Corporation, 40 Rector Street, New York 6. This 12-page booklet summarizes the physical properties, chemical reactions and suggested uses of 3,6-endomethylene- $\Delta$ 4-tetrahydrophthalic anhydride. An extensive list of 68 literature references is included.

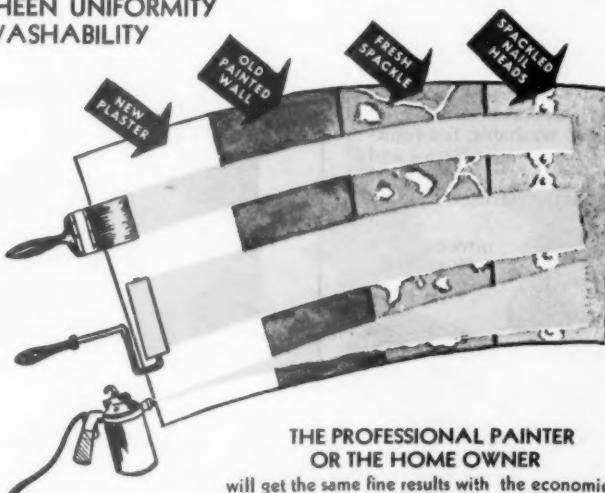
## VINYL STABILIZERS

Four-page folder presents company's line of vinyl stabilizers for use in calendering and extruding, rigid compounds, plastisols and organosols. Advance Solvents & Chemical Corp., 245 Fifth Ave., New York 16, N. Y.

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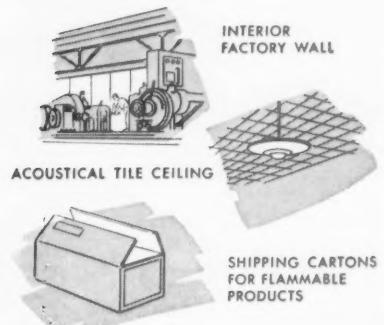
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#### ACRYLONITRILE

A new 8-page technical bulletin on acrylonitrile has just been released by Carbide and Carbon Chemicals Co., a Division of Union Carbide & Carbon Corp., 30 E. 42nd St., New York, N. Y. The reactions of acrylonitrile and its major uses are described. Properties, constant-boiling mixtures, specifications, and shipping data are included.

Acrylonitrile lends many desirable properties to polymeric materials used in the preparation of synthetic fibers, rubber, and plas-

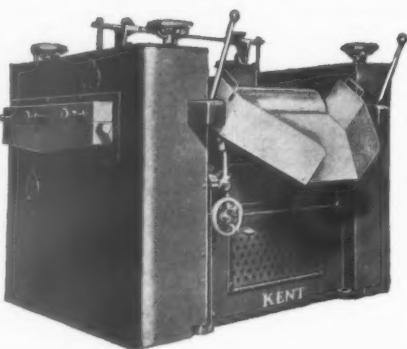
tics. Its polymers are used in treating textiles, leather, and paper; in surface coatings; etc. Acrylonitrile reacts to form compounds used as solvents and plasticizers.

#### CHEMICAL FEEDER

A small, low-cost feeder for metering, controlling, mixing, and dispensing small quantities of liquid chemicals is illustrated in Fischer & Porter catalog 70-50 (two pages). Specifications, capacities, installation diagrams and applications are covered. Fischer & Porter Co., 149 Jacksonville Rd., Hatboro, Pa.

## The KENT

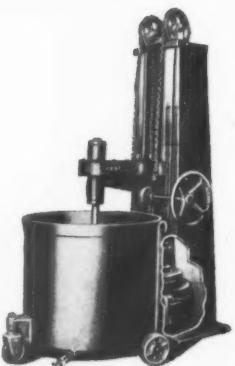
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## PROPYLENE OXIDE

Four-page technical information sheet on propylene oxide includes physical properties, specifications, shipping data, constant boiling mixtures, physiological properties, and uses.

Propylene oxide is an intermediate for the production of textile lubricants, petroleum de-emulsifiers, and vat dyes. Advantage can be taken of its high solvent power in adhesive formulations. It is also an effective stabilizer in the manufacture of products from resins that contain chlorine.

Copies of this new technical information sheet are available from Carbide and Carbon Chemicals Company, 30 East 42nd Street, New York 17, New York. Ask for F-8485.

## PRESERVATIVE

Four-page folder is concerned with fungus resistant vinyl plastics for both military and commercial purposes.

This bulletin reports the correlation of experimental work by major vinyl producers and discusses the use of the company's line of fungicide and the properties they impart in the vinyl plastics.

Scientific Oil Compounding Co., Inc., 1637 South Kilbourn Ave., Chicago 23, Ill.

## LECITHIN

An eight-page folder entitled "Effect of Lecithin on the Dispersion of Titanium Dioxide in Latex Paints" is available from the Office of Information Services, New York University, University Heights, New York City 53, at 25 cents.

The paper, which was prepared by Dr. Max Kronstein of the Research Division of the College of Engineering, describes the effect of lecithin—a compound derived from soybeans—on dispersion of pigment in white latex finishes and on the pH-value and viscosity of the paint system.

Reprinted from the May, 1954, issue of "Paint and Varnish Production," the paper includes data on initial mixing of the liquid phase with titanium dioxide, viscosity levels at various stages up to 10 weeks of storage, and the effects of varying amounts of lecithin.

## ELECTRICAL EQUIPMENT

"Electrical Equipment Design For Hazardous Locations" is the latest of an annually revised series of 16-page bulletins distributed by Crouse-Hinds Company that explain why electrical equipment for hazardous locations is designed and built as it is. This booklet covers explosion pressure dynamics and why explosion-proof lighting fixtures, control boards and receptacles are necessary for safe operations at Class I (explosive gases or vapors) or Class II (combustible dusts) locations. Request bulletin 2660. Crouse-Hinds Company, Seventh North Street, Syracuse, New York.

## PAINT ADDITIVE

Technical bulletin discusses the use of Troyxyd Compound XYZ as a paint additive in coatings. Such important factors as what this material can do, how it can be used, and physical properties are covered in this bulletin. Troy Chemical Co., 2589 Frisby Ave., New York 61, N. Y.

## VISCOSITY CONTROL

Automatic viscosity control system is covered in this 4-page bulletin issued by the Norcross Corp., 247 Newtonville Ave., Newton 58, Mass. Details on the operation of the system, advantages and uses in various applications are also presented.

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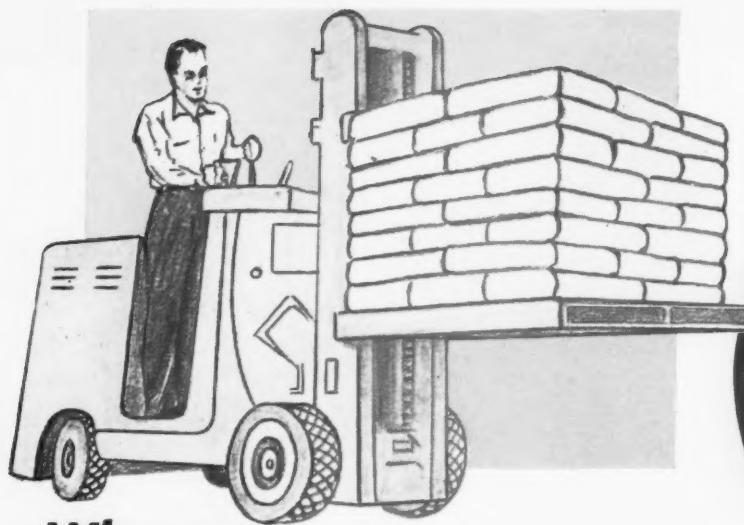
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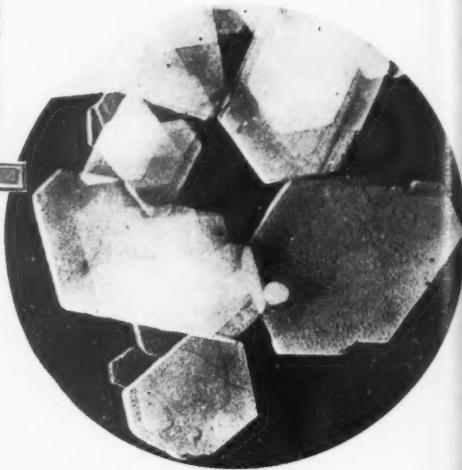
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